Vol. 4, No. 5

MicroWINGS Magazine

OFFICIAL MAGAZINE OF THE INTERNATIONAL ASSOCIATION FOR AEROSPACE SIMULATIONS

California Dreamin'

Building Your Own Cockpit
Review of FSFX
Shooting Composite FS Photos
Adding Dynamic Scenery
Flying From Coast to Coast
'96 MW Conference Report

Sure, there are cheaper PC, Mac, and 3DO game controllers. But if you're ready to get serious, you need the high-quality, built-to-play-rough peripherals from CH Products.

When you're ready to get serious, you're ready.

Our joysticks, throttles, flight yokes, rudder pedals, and other controllers are born in the USA, and made to take the heat of any battle, race or game you throw their way. So put on your game face, get down to your computer dealer and grab the game controllers made for serious players.

FlightStick Pro (PC Mac & 3DO)
FlightStick
CH Pedals (PC & Mac*)
Pro Pedals
F-16 FighterStick (PC & Mac*)
F-16 CombatStick
F-16 FlightStick
Pro Throttle (PC & Mac*)
CH Throttle
Virtual Pilot Pro (PC & Mac*)
Virtual Pilot
Trackball Pro (PC & Mac)
Jetstick (PC & Mac)
Gamecard 3 Automatic

*Coming soon. First Quarter 1996.

CH PRODUCTS

CH PRODUCTS 970 Park Center Drive Vista, CA 92083 • Phone 619 598 2518 • Fax 619 598 2524
http://www.chproducts.com • America OnLine: CHProducts@aol.com • CompuServe: Go GAMEDPUB

MicroWINGS Magazine™

Vol. 4, No. 5 - Sep/Oct 1996

The Official Publication of MicroWINGS™ - The International Association for Aerospace Simulations. The magazine covers the microcomputer aerospace simulation market.

MicroWINGS Magazine (ISSN 1068-3275) (USPS 11361) is published bi-monthly by MicroWINGS, Inc.. Publishing office is at 6745 Country Club Circle, Dallas, Texas 75214 USA. Second class postage paid at Dallas, Texas.

Subscription price is $49 US per year (6 issues) through membership. Canada and Mexico add $6 postage surcharge. All other countries add $18 postage surcharge. Mastercard/Visa/Diners Club credit cards are accepted for membership payment. Call 214-324-1406 for ordering information.

POSTMASTER

Send address changes to MicroWINGS Magazine at 381 Casa Linda Plaza #154, Dallas, Texas 75218 USA.

Copyright © 1996 by MicroWINGS, Inc. All Rights Reserved. No part of this publication may be reproduced, transmitted, stored in a retrieval system, or translated into any other language in any form by any means, without the prior written permission of MicroWINGS.

The information contained in this publication is from many sources for which there can be no warranty or responsibility by the publisher as to accuracy, originality, completeness, or suitability to a purpose. The publisher is not engaged in rendering product endorsements or providing instruction as a substitute for appropriate training by qualified sources. MicroWINGS assumes no responsibility for unsolicited material.

Editor in Chief: Robert M. MacKay

Executive Editor: Debra E. MacKay

Contributing Authors: Jim Ross, Charles Gulick, Rick Lee, Scott Holtzman, Nels Anderson, Alfred Poor, Bill Higgins, Tim Trimble, Michael Fisher, Dan Maas, Phil Curtiss, James Yates, E.J. Peiker, Steve Wigginton, Tom Kopke, John Kelley, Laurent Mangane, Jonathan Stern, Hans Kiener, Dave Baucum, David Allan, David Atkinson, Bill Cline, Enrico Schiratti, Greg Hannigan, Russell Mueller, Robert Pursur, John McNeely, Mark Stotzer, Al Pelletier.

Trademarks: MicroWINGS, MicroWINGS Magazine, The International Association For Aviation Simulation, The International Association For Aerospace Simulations, Designer's Den, Flight School, Take-Offs, Under The Hood, The Science Of Simulations, The Flight Deck, Sneak Peeks, The Pilot's Lounge, Mission Control, Flight Simulation Online, The Pilot Shop, and Ask Dr. Sim are trademarks of MicroWINGS, Inc. Other product names mentioned in this magazine are trademarks or registered trademarks of their respective companies and are hereby acknowledged.

CONTACTING MICROWINGS

To contact the MicroWINGS Offices or address any of the authors of articles appearing in MicroWINGS Magazine, address all correspondence to: MicroWINGS Magazine - 381 Casa Linda Plaza #154, Dallas, Texas 75218 USA. For telephone calls or faxes, dial 214-324-1406.

from the editor

Smiles

They were all you could see on the faces of the 1996 MicroWINGS conference attendees. We could not be more pleased with the success of the conference, including the facilities, food, presentations, exhibits, and the people -- all combined to generate the most fun filled weekend any flight simmer has ever spent doing flight simulation! Read all about what made this year's conference so great in this issue's MW '96 Conference coverage by Michael Fisher. A note of special thanks to Paul Olson and Alfred Poor (and his Epson digital camera) for providing many of the photos from the conference.

1996 has wound down and is close to passing the baton to 1997. It was a great year for flight simulations with the releases of scenery designers, new versions of flight simulations, planes, scenery, and panels galore. 1997 promises just as much as 1996 or even more... beginning with the upcoming release of the MS Expansion pack for Southern California. This new scenery package sets a new standard for scenery. To start with, the scenery will encompass a huge area and feature digitized voice adventures made especially for the package. Our cover features a screen shot of the Cessna as it flies a downwind leg for a landing on Catalina Island in this new scenery package. The shot was then mixed in with a sectional map for the same area. The resulting dreamy image does indeed have us 'California Dreamin' for this new package - due to appear in stores right after the holidays.

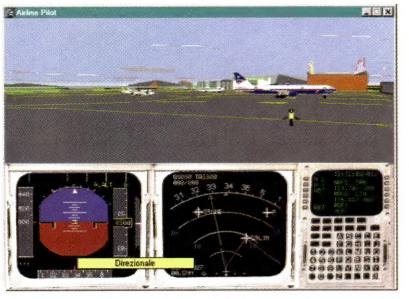
To enhance the 'dream', we have brought back the Building Your Own Cockpit series with this issue. We will be using the series to go into detail on how to add more realism to your home built cockpits and/or flight simulation setups. The series starts with details on the sense of sound and how to use sound to dramatically increase the level of realism that can be delivered from a computer based flight sim.

I would like to welcome two new commercial members of MicroWINGS. The first member, **Flight Safety International**, is a leading pilot training organization and has recently inked agreements with Microsoft to help in the development and content of Microsoft's Flight Simulator, future versions, and training add-ons. The second, **Xavious Software**, is launching into the simulation arena with a highly accurate simulation of Air Traffic Control Centers (see this issue's NOTAMs). Please show your support for these companies and welcome them aboard. *[MW✈]*

NOTAM'S

News Bits From Around The World

Note - If a company listed below is a commercial member of MicroWINGS, it is a very good indication that you can count on their support of flight simulation users like yourself and for the market. Contact information for commercial members is located in every issue in the Commercial Member Directory.

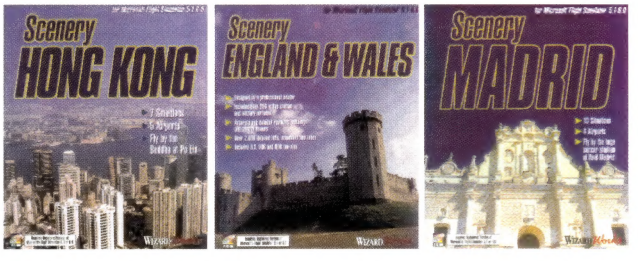


LAGO has released their new Airline Simulator - a full-featured commercial flight simulation offering flight experiences throughout the European skies. It gives control of a Boeing 747-400 through the most appealing European destinations and a few North American cities. With a photorealistic flight deck and a complete online interactive manual running on the same CD, Airline Simulator (AS) is a captivating airliner simulator with nothing else like it in the market. AS features a revised subLOGIC 747 flight model to better reproduce the 747-400 dynamics. It also includes a special version of 3DAGS (a.k.a. ATP Companion) that includes a full working glass cockpit running at 640x400 resolution at 256 colors; the glass cockpit is redesigned with the typical Boeing colors and includes full instrumentation support on the secondary panel for the four engines. In addition to the European scenery Airline Simulator includes a North Atlantic scenery that will allow you to fly from each European airport to New York, Boston, and Toronto under ATC control. Airline Simulator sceneries are 100% compatible with ATP and the EFIS supplied within the 3DAGS's glass cockpit. Airline Simulator comes with an Interactive Manual (ASIM) running under Windows 95 (it can also be used with Windows 3.1). With ASIM you will be able to easily learn how to use the simulator, understand how to operate the glass cockpit, print the approach charts (included only for the primary airports), print a quick reference chart, and print parts of the instruction manual you may need to bring into the cockpit. ASIM is supplied in English, German, French, and Italian, its interface is based on the simulator's screen shots.

Aviation Teachware's ELITE instrument flight simulator has received certification by Transport Canada as a Level 2 Flight Training Device (TC ID 01) when used with the Precision Flight Controls' Console. The certified software and flight controls can be used for training and check maneuvers. It is expected that 20 hours on the simulation can be credited toward an instrument rating and 25 hours towards an ATP rating. Aviation Teachware is hoping that this accreditation will help serve as an impetus to get the FAA to sign Draft AC-61-xx (a similar PC based sim certification for IFR rating training). Aviation Teachware is also now shipping their latest, photo-realistic panel version of Elite.

Xavius Software has released their Air Traffic Control Center (ATCC) simulation. ATCC features a highly realistic simulation of actual radar sectors in the New York, Chicago, and Los Angeles ARTCC's (Air Route Traffic Control Centers). The product features: 1) Radar displays and computer entries identical to what real controllers use. 2) A full range of aircraft from Cessna's to Jumbo-jets complete with fully accurate performance characteristics. 3) Realistic radio communications in both standard ATC phraseology and plain English. 4) Weather including upper winds, turbulence, and storms. 5) Sector layouts, procedures, and traffic flows very similar to what the actual sectors experience in real life.

Jeppesen has started shipping their new digitized chart service called JeppView. A windows based software package, JeppView comes on CD-ROM for different parts of the USA. Coverage will eventually be worldwide. The software allows the user to search for Approach charts, airport layouts, SID's, STAR's, airport directory information, and to read the latest chart NOTAMS. The software displays the charts in full color and can be printed to either a B&W printer or color printer.



WizardWorks is now shipping the excellent scenery products published by Pilots. The first three are Hong Kong, Madrid, and England/Wales. The packages are all on CD-ROM and include detailed renditions of their respective locations. Everything from buildings, roads, airports, navaids, and easter eggs can be found in these scenery packages.

Genovation has started shipping their new Programmable Function Keypad (the Keypad 35). The unit connects to any PC via the serial port and is fully programmable by any of two key-defini-

NOTAM'S

News Bits From Around The World

tion software modules, allowing up to 70 custom macros (2 per key). A macro can be as long as 64 characters. Drivers for DOS, Windows 3.1, and Windows 95 are included.

Microsoft has released for free distribution, a converter to allow Flight Shop aircraft ***and*** adventures to be used with Flight Simulator for Windows 95. They have also released a revised set of ATC wav files for use with converted Flight Shop ATC adventures. The new wav files were re-recorded at a higher volume to make them easier to hear over the engine sounds. The files (FSCONV.EXE and AAFWAV.ZIP) are both available on the MicroWINGS web site (www.microwings.com).

CH Products has announced the shipping of their long-awaited F-16 fighterstick with 20 programmable functions. It features one 8-way switch, three 4-way switches, three push buttons, and a trigger. Coupled with their Pro Throttle, the flight sim enthusiast can have up to 40 programmable functions available at their finger tips. The stick also sports a throttle wheel and vert/horz trim wheels. Included with the stick is a DOS based, point and click software package for super easy programming of either single keypresses or macros.

Microsoft has released a patch for Flight Sim 95 that should solve any lockups you may be experiencing while using non-MS scenery. The patch also corrects FS95's use of exclude files which prevent underlying default scenery from showing when you have additional scenery for the same area. The patch is in a file called FEPAT.EXE and is available on the MW web site. If for some reason the patch does not cure your lockups, try turning off the Dynamic Scenery. This is done via the World-Dynamic Scenery menu item. Set the scenery to Very Sparse and click off each of the 4 dynamic scenery types. Repeat the process for Window 2. *[MW✈]*

MicroWINGS Magazine

Table Of Contents

Letters

From The Editor 3

Reviews

The 1996 MicroWINGS Conference 22
FSFX 15

Articles

Building Your Own Cockpit - Sound 39
Interview with Jonathan Stern 42
Shooting Composite FS5 Photographs 34

Featured Columns

CompuServe - The Electronic FBO 43
Crosswinds 11
Designer's Den 17
Flight Simulation On-line 26
Pilot Shop 28
Round Robins 30
Under The Hood 8

Other

Advertisers Index 46
Ask Dr. Sim 41
Company Column - BAO 33
Directory Of Commercial Members 46
Drawing Winners 5
In Upcoming Issues 46
NOTAM's 4
Sneak Peeks 47

MicroWINGS Drawing Winners!

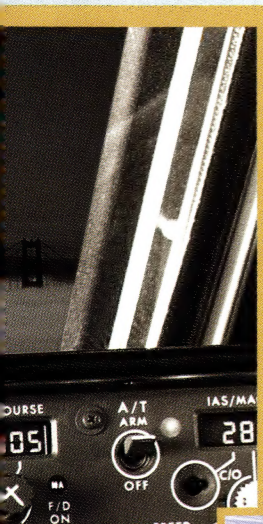
The Sep/Oct Drawing Winners Are:

Robert Hayles of Lakewood, NY has *Jonathan Stern's FS Handbook* on its way to him. Congratulations!

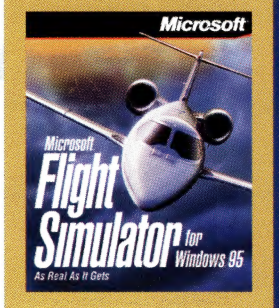
Jose Cabreira of Portugal has BAO's *Flight Sim Flight Shop CD* on its way to him. Congratulations!

KIDS TO ADULTS
K-A
CONTENT RATED BY
ESRB

© 1996 Microsoft Corporation. All rights reserved. Microsoft and Windows are registered trademarks and *Where do you want to go today?* is a trademark of Microsoft Corporation. BF Goodrich is a registered trademark of the B.F. Goodrich Company.



Is it a game when your stomach lurches in the course of performing a Cuban eight? Is it a game when beads of sweat appear on your forehead while flying under London's Tower Bridge to digitally sampled sound? No. This is not a game. This is Microsoft® Flight Simulator for Windows® 95, the latest upgrade to the most realistic PC flight simulation available anywhere.



Experienced sim pilots will relish logging time in their new Boeing 737-400 and aerobatic Extra 300S, extending the range of experience beyond the four planes already in the fleet. A heightened level of realistic flight dynamics has been achieved, as verified by Flight Safety International, the world's leading pilot training organization.

Buzz Las Vegas by night and Martha's Vineyard at dawn with a degree of photo-realism that only satellite imaging makes possible. Soar over New York, Paris, Tokyo and other cities with more detailed 3D rendering. Improved performance delivers smoother out-the-window views and more immediate response to cockpit controls.

Challenges have been added to test your skills under daunting weather conditions, over new terrain, in varied aircraft. Fly in the face of Mother Nature as you shoot an instrument approach into the fog. Climb over the Alps through rapidly shifting winds, turbulence and changing visibility. Blow the skirts up on the Statue of Liberty.

To find out even more about Microsoft Flight Simulator for Windows 95, visit our Web site at www.microsoft.com/games/fltsim/

Microsoft®

Where do you want to go today?™

Expansion Pack with southern California scenery, challenges and adventures available soon.

with Jonathan Stern

The Long Haul, Heavy Iron, and Relationship Survival

In this *Under The Hood* column, we make the long haul in the heavy iron: D.C. to LAX in the Boeing 757. I enjoy simulating trips that I take on the airlines, and this is one I took twice this year for business. From chocks to chocks, this is about a five hour trip, which raises the relationship survival issue.

Relationship Survival

In the May/June 1993 issue and several subsequent issues, *MicroWINGS* promised that a forthcoming issue would contain an article on "spouse survival tips." Despite the importance of this issue, the article was never published. Perhaps it was perceived as "politically incorrect."

The reality is that the hobby of flight simulation *tends* to be a solo activity and to require large chunks of time. The trip described in this column is but one example. The introduction of *Flight Simulator Flight Shop* has exacerbated the problem by increasing the time consumed in a typical flight simulation session. Instead of a quick flight around the pattern at Meigs Field, as I used to fly, I now fly an ATC-controlled trip that will require, realistically, a *minimum* of 30 minutes to set up and fly.

For those flight simulation enthusiasts involved in significant relationships, there are three general approaches to relationship survival. The first is to bring the significant other into flight simulation. At the 1994 MicroWINGS Conference, there were several husband and wife attendees, indicating to me at least some interest on the part of both spouses. Mutual enjoyment of the hobby is ideal. Far greater in number, I suspect, are the cases of significant others with little or no interest in flight simulation. My wife falls into this category. She has absolutely no interest in flight simulation and no concept of why anyone takes pleasure in doing what I do with *Flight Simulator* or *ATP*.

Relationship survival, in the case of the disinterested significant other, requires one of two alternatives. The first is that the significant other has his or her own solo activity to engage in while the other is flying/flight planning. I've heard Rick Lee describe his sessions on the computer using a laptop while his wife read or watched television in the same room. The other alternative — as best I have it figured out — is to do one's flying while the significant other is sleeping. Accordingly, a substantial amount of my flying occurs between 10:00 p.m. and 7:00 a.m.

That said, I can only suggest that flight simmers find a suitable time and/or place to fly the trip described below.

Flight Plan: DCA to LAX

Using *WinPlanner3*, I charted our course from Washington to Los Angeles. The flight plan is shown in figure UTH.1.

This trip is a twelve state odyssey, covering airspace over Virginia, West Virginia, Kentucky, Indiana, Illinois, Missouri, Kansas, Oklahoma, Texas, New Mexico, Arizona, and California. We'll cross mountain ranges and 1,200 miles of the Great

FIX	IDENT	FREQ.	COURSE	ALT/FL	DISTANCE
Washington	DCA	111.0	272	410	223.8
Charleston	HVQ	117.4	261	410	54.9
Newcombe	ECB	110.4	271	410	125.9
Louisville	IIU	114.8	253	410	78.2
Owensboro	OWB	108.6	254	410	118.7
Cape Girardeau	CGI	112.9	268	410	179.7
Springfield	SGF	116.9	252	410	132.2
Bartlesville	BVO	117.9	244	410	89.6
Woodring	ODG	109.0	261	410	101.1
Gage	GAG	115.6	251	410	304.3
Santa Fe	SAF	110.6	255	410	137.2
Gallup	GUP	115.1	241	410	97.4
Winslow	INW	112.6	241	410	85.7
Drake	DRK	114.1	258	410	98.4
Needles	EED	115.2	241	410	202.3
Los Angeles	LAX	113.6		Total	2029.4

Figure UTH.1 - The flight plan for our cross-country flight.

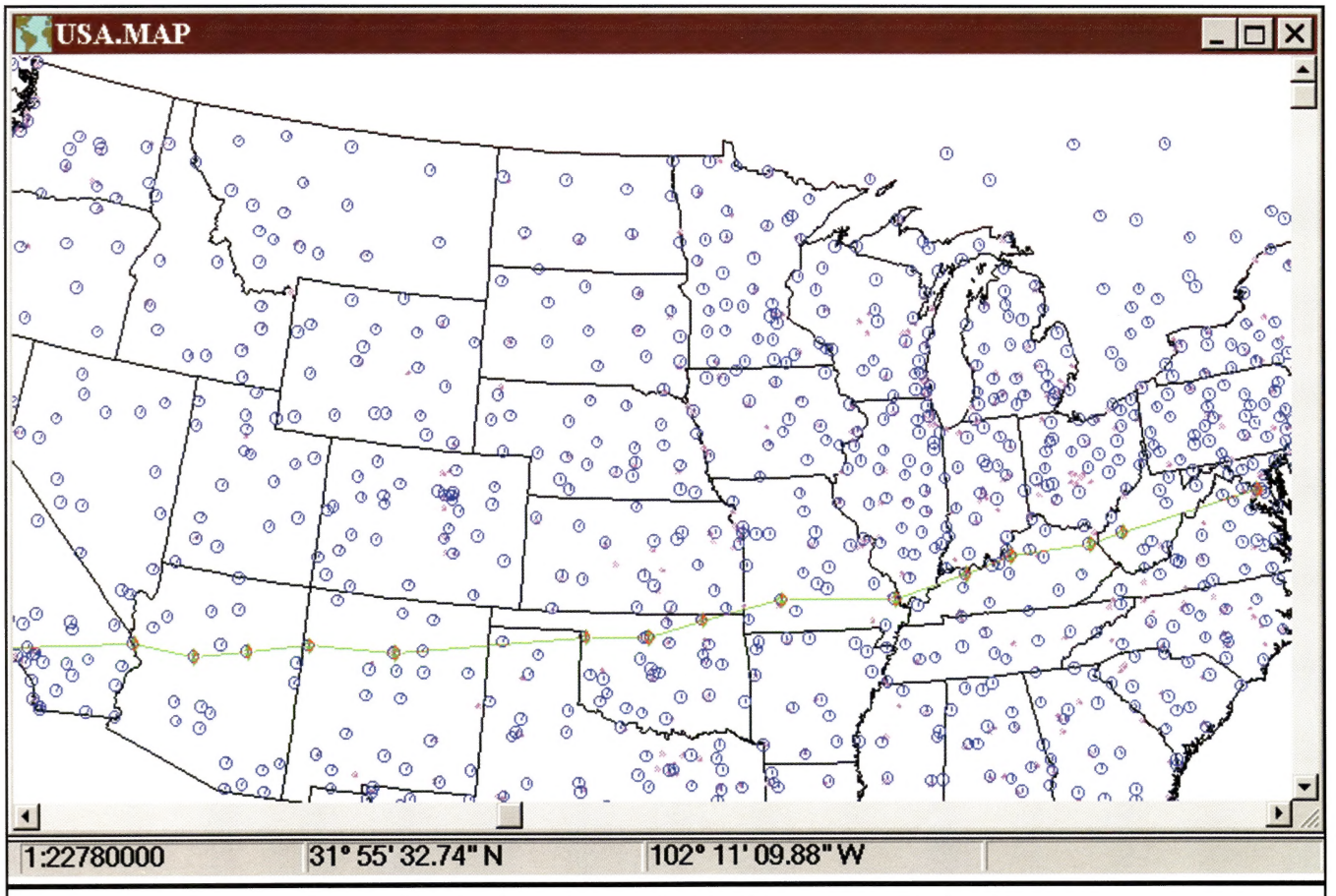


Figure UTH.3 - Our charted course using NavAid's enroute mapping function.

Plains.

If you're joining me on this long journey and use *WinPlanner3*, enter the parameters shown in figure UTH.2, so that we fly the same trip:

Screen:	*Departure*	*Arrival*
Minimum Altitude	2000	3000
Maximum Altitude	5000	3000
Clearance Delivery	128.25	
Ground	121.7	121.75
Tower	119.1	120.95
Departure/ Approach	118.95	124.5
Runway	36/005°	7L/069°
Final Approach Distance		8
Altitude		1800
Missed Approach Altitude		3500

Figure UTH.2 - WinPlanner 3.0 Settings for our cross country flight.

Top off the tanks for the trip, and plan an economical power setting for the trip so that you do not exhaust your fuel supply crossing the United States. If you take the trip in an airplane that does not offer the necessary range, improvise with some imaginary air-to-air refueling along the way.

Flying The Trip

For me, the trip began with a call to clearance delivery on frequency 128.25. I was cleared as filed, climb and maintain five thousand, expect flight level four one zero, one zero minutes after departure, squawk two one two one. I had programmed my call sign as USAir 27.

Ground control instructed me to taxi to Runway 36, which I did. After tuning the navigation radios and the transponder and completing the before takeoff checklist, I contacted the tower on frequency 119.1. Tower instructed me to "taxi into position and hold, runway 36." Thirty seconds later, USAir 27 was instructed to fly runway heading, cleared for takeoff.

Takeoff from Runway 36 at Washington National Airport requires turbojet aircraft to make a left turnout and follow the Potomac River northwestbound. This is done for noise abatement purposes. My computer doesn't know to tell me this, but a little improvisation never hurts. After departure, I was instructed to contact departure on 118.95 and was then turned to several headings before being turned to my general course on a 270 degree heading. Departure

advised that I could expect flight level 410 in four minutes and climbed me straight up to flight level 410 within a few minutes of takeoff.

Once one gets the hang of VOR tracking procedures, the navigational aspects of IFR enroute flight are not all that challenging. On a long trip like this, the enroute tasks can become mundane — if not downright boring. One may wish to engage the Flight Plan Autopilot ("FPAP") and undertake checkbook reconciliation or some other task. The FPAP may also be useful for several legs of this trip, including the very first, where real world reception ranges exceed those of *Flight Simulator*. This will be true with the legs from Cape Girardeau to Springfield, from Gage to Santa Fe, and from Needles to Los Angeles. Each leg that exceeds 160 nautical miles will require flying headings assigned by ATC, the FPAP, or some dead reckoning, because the range of every VOR-type navigation aid on *Flight Simulator* is 80 nautical miles (give or take a few miles).

Airline pilots sometimes pass the time by describing to their passengers points of interest along the way. On the leg to Charleston, you may wish to point out the small hamlet of Myra, West Virginia, the birthplace of Chuck Yeager. My USAir 27 flight was instructed to contact the Air Route Traffic Control Center a few minutes after takeoff. A handoff was made to another Center controller as I approached Charleston. In all, I talked to Centers on seven different frequencies during the trip to California.

Our flight plan takes us right over Louisville, Kentucky, birthplace of boxer Muhammad Ali and Supreme Court Justice Louis Brandeis. As the airplane passes Winslow, Arizona, about 80 miles East of the Drake VORTAC, you may wish to point out a meteor crater 4,000 feet wide and 600 feet deep. I don't know what else Winslow is famous for, but I always think of a girl in a flatbed Ford slowing down to take a look at me (a verse from a song by the Eagles). Passengers also are often interested in, and surprised by, the outside air temperatures at altitude. On my flight, the low temperature at altitude was 34° below zero Fahrenheit.

After passing Needles, a California city on the Arizona border, the Center gave me a series of descents that ultimately got my flight down to 3,000 feet before I was at Los Angeles. I was also switched to Los Angeles Approach Control on frequency 124.5. There are eight ILS's at LAX. Using *WinPlanner3*, I was able to select the ILS to runway 7L. If you use *Flight Shop* without *WinPlanner3*, you could be assigned any of the available ILS approaches. For the ILS Rwy 7L IAP, approach vectored me about ten miles over the Ocean before turning me in for the approach. The radar vectors were good, and I intercepted the final approach course at 1,800 feet two miles outside of Turka.

It has often been my experience that a long flight leads to a mediocre landing, and this flight was no exception for me. My bounces probably qualified as three landings. Well, at least that made me current to carry passengers for ninety days in daylight conditions.

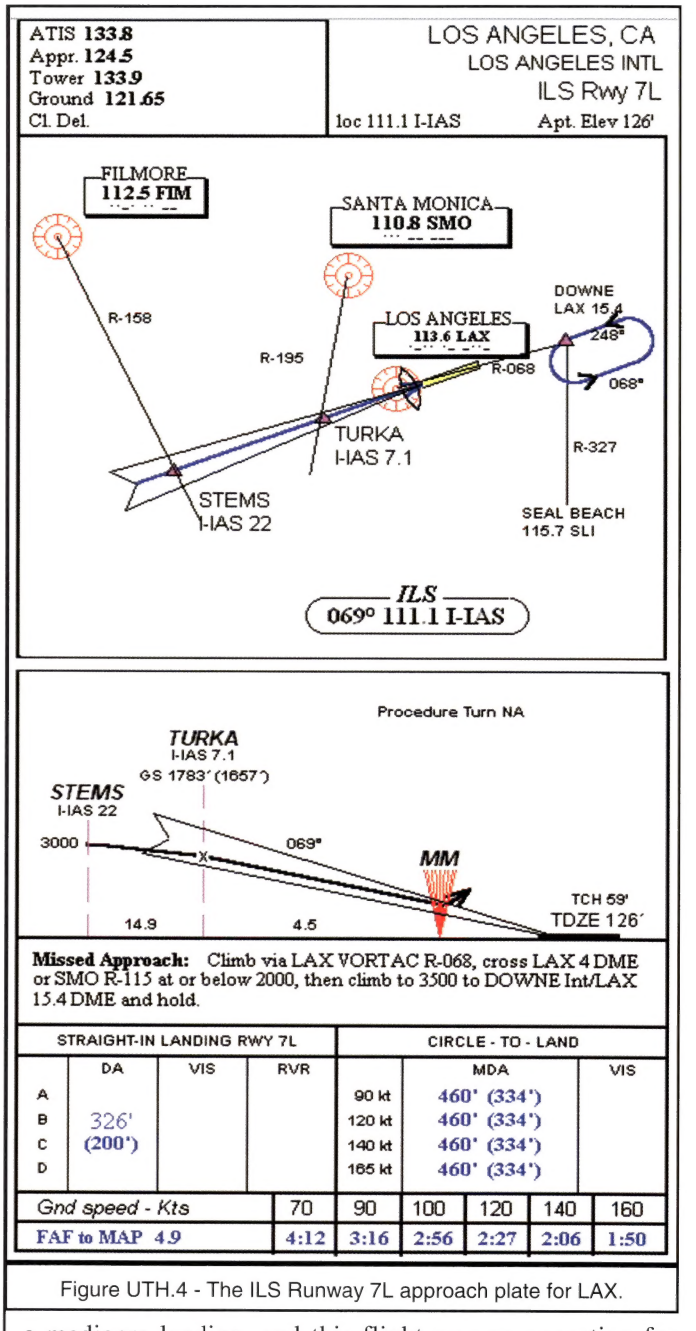


Figure UTH.4 - The ILS Runway 7L approach plate for LAX.

After a long flight, I taxied to parking, looking forward to a dinner at the newly-remodeled Chart House restaurant just up the road on the beach in Malibu.

About the author - Jonathan Stern is counsel with Dombroff & Gilmore, P.C. in Washington, D.C.. He holds comm pilot, CFI, ground instructor, and control tower operator certificates. He is also the author of two books on Flight Sim: Microsoft Flight Simulator Handbook and Flying On Instruments With Flight Simulator. Jonathan can be reached on CompuServe at ID 73502,2437. [MW✈]

CROSS WINDS

with Charles Gulick

Mountain Fever

To fly this edition of Crosswinds you'll need Flight Simulator for Windows 95 (FS95). I'm assuming as I write this that this new version of FS is now in your hands, or very soon will be. I had the good fortune to be a beta tester, and I think FS95 is very good indeed, based on my experiences with Beta 2 (there were only two betas distributed, at least to the CIS FSFORUM tester group of which I was a member). You'll need the new W95 version for this Crosswinds because we'll be flying in an area that is introduced for the first time with FS95.

For said flight, we're going to create a slow-flying configuration for the Cessna 182. A slow plane is highly useful in FS, since it gives us more time to enjoy the scenery, and to enjoy it at closer range. Further, a slow plane is more maneuverable in small spaces than is a fast plane, so we can fly in and around buildings and do other illegal stuff with less sweat (although we won't be close to any buildings in this flight). For those of you, too, who may be still learning Flight Simulator, a slow airplane is beneficial; it gives you some time to think about what you're going to do next (before it's too late?).

So here's how to make the 182 fly almost like an Ultralight. And after we perform that feat, we'll launch the result on a flight in one of FS95's most exciting areas.

Using any flight as a starter, enable "World" and "Set Exact Location." Under "Set Location with Latitude & Longitude," put your plane at N 47 52 08.45, W 119 56 14.26, and (in the boxes under "Current") set altitude to 1266 and heading to 205. Next click on the "Set Location of" arrow and select "Control Tower." Then put an Observer (the Tower) at N 47 51 50.24, W 119 56 41.14, Altitude 0. Leave "Heading" as is (heading doesn't matter when you're positioning an observer, since he/she turns as needed to keep your plane at the center of things). Click on OK. If the simulation should slip into Slew, switch back to regular flight by pressing Y.

You'll find yourself at the business end of Runway 20 at Chelan Airport, deep in the heart of Microsoft's own state of Washington, on the Columbia River and at the eastern edge of the Okanogan Range—some of whose mountains you see ahead. This scenery is a possible forerunner of FS mountainous scenery of the near future, being what is called "photo-realistic," but in any case it is highly scenic and quite believable.

Now we have to trim the 182 very carefully and precisely to get it to fly like we want it to. I've tried to make it as easy as possible, so follow closely. Using the keypad 7 and/or 1 keys, position the needle of the elevator trim position indicator (the gauge just to the left of the gear and flaps indicators) so that it is on the center hash mark; and then further adjust it so that it is at the "bottom" of that hash mark, i.e. so that one slow press of the keypad 7 key displaces the needle just *below* the center hash mark, and one slow press of the 1 key moves the needle back up *to* that hash mark. You'll leave the trim where you've set it now throughout the flight we describe here—just forget you have a trim control, and you'll be trimmed right for all flight configurations.

Figure CW.1 - Ready on Chelan Runway 20, with the 182 trimmed for cruising at about 70 knots. Note both flaps and gear remain extended throughout the flight, and trim is not altered.

Figure CW.2 - Photo-realistic mountains of the Okanogan range (Chelan area) in the foreground, and the old-style "evergreen" mountains in the background. But the new mountains hide some surprises.

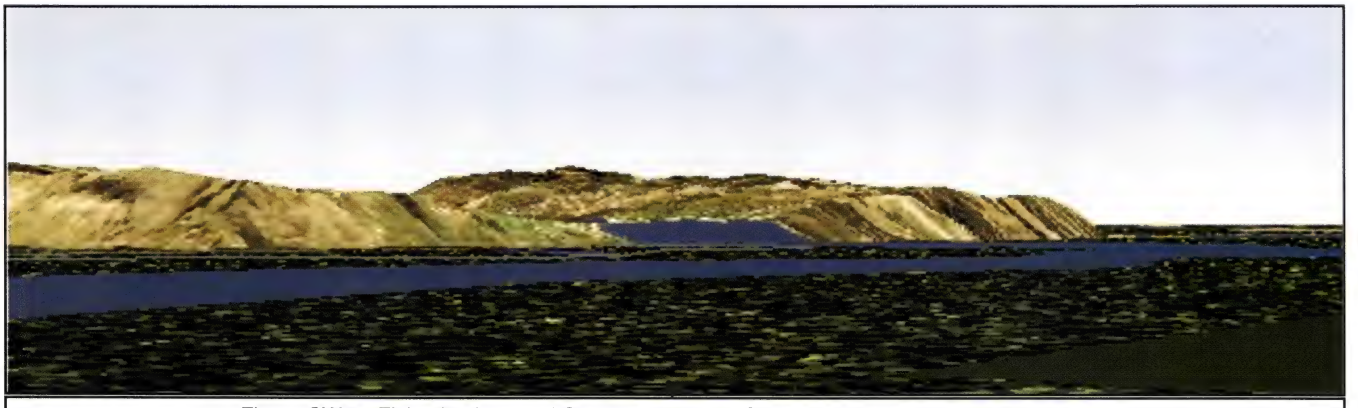


Figure CW.3 - Flying back toward Chelan airport, the Okanogans are resplendent in the sun.
Note how an optical illusion makes it appear that Lake Chelan rises where it joins the mountains.

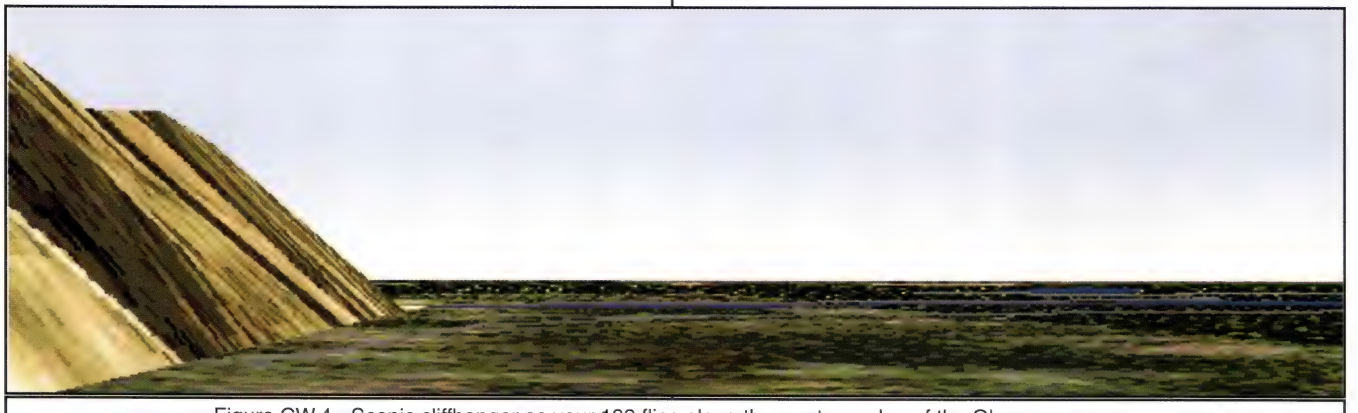


Figure CW.4 - Scenic cliffhanger as your 182 flies along the western edge of the Okanogan range.
The Columbia River, just visible beyond the cliffs, will lead you back to Chelan Airport.

One further adjustment is needed to achieve our Ultralight similitude: apply FULL flaps. You'll leave the flaps, too, alone for the flight we'll fly below. And regard your gear as fixed—remember not to retract it. Your primary control in this slow-fly mode is your throttle, which you will find will serve you very well.

Now set up any spot-plane view that suits you, then press the semi-colon (;) and save this configuration. Title the flight "182UL at Chelan" or whatever you like that will remind you that you have the slow "Ultralight" configuration in place. See Figure CW.1 and check that your trim and flaps are in the prescribed positions.

Square World

Enable your map, and zoom in or out until you can see all but the upper right-hand corner of the square within a rectangle that comprises the Chelan scenery. At one o'clock is Lake Chelan. What we're going to do is take off, fly through the mountains to the lake, and fly the length of the lake until we reach whatever that green strip is. We'll find out what the green looks like in the simulation, then perhaps fly along the ruler-straight edge of the area.

But first, proceed with your takeoff. In the slow-fly configuration you've set up, try rotating at about 50 knots.

Figure CW.5 - The abrupt appearance of Chelan Airport can result in some abrupt approach maneuvers,
if (like the author) you're too lazy (or crazy) to go around. Approach is to Runway 02.

Remember, no further trimming—and leave your gear as well as your flaps extended. Note the Columbia River off to your left as you climb out.

To the extent that you can, fly toward the most distant peak—but don't lose track of the mountain on your right. Your objective is to avoid that, certainly, while you climb to a safe altitude above it. Then, once you have that altitude, cautiously turn right toward Lake Chelan, of which you'll now be able to see more and more. Level off at about 17-1800 feet and on a heading of approximately 260, or whatever points you straight up the center of the lake.

Note how new converges on old here. In the foreground are the dramatic new mountain textures exemplified by the Chelan scenery. And ahead are the old "evergreens"—ugh! Figure CW.2 shows the configuration you should be in. Note your slow-fly airspeed is about 70 knots.

Where the lake appears to bend right, follow its curve. Note the road running along the lake's shore. Except for that sign of civilization, one could be over no-man's-land here, hmm? Take another look at your map. Obviously, there's more to this lake than showed up at first in the square world of Chelan. And what the map shows as rigid green strips turn out to be very believable geography indeed.

At present I'm on a heading of 331, and there's lots more water out front, bending left. Continue to follow it.

Tracking this long lake, I'm thinking of an episode in one of my FS adventure books called "Fly Me a River," where the idea was to follow the Kankakee River from Kankakee to wherever it ended (in an early version of Flight Simulator), and then do a 180 and follow it back to IKK (Greater Kankakee Airport). A reader and subsequent good friend of mine—Howard Bloom, of Arlington Heights, IL—reminded me of the episode when we met at the 1993 MicroWINGS conference. He had understood the mood of "Fly Me a River," and I remember how pleased I was that someone could so appreciate and enjoy a specific event in one of my books. Howard and others I got to know at that conference were the first readers of mine I'd ever met. That meeting with Howard, and his sharing with me his warm reaction to a chapter I'd long forgotten, remains one of my very favorite memories.

Well, guess what—I just landed! A little tire screech and my altimeter reading suddenly switched about 1,000 feet higher, to about 2,700 feet, and I'm on the ground—or maybe dry lake bed. Can't even see the water. I'm wondering if this happened, or will happen, to you. That's what I get for dwelling too much on the past! (Maybe it's been corrected since beta 2. Hmm?)

So I've now slewed up to 3,200, where things look more normal, disengaged slew, and am continuing on my merry way!

Speaking of the past, the first version of Flight Simulator for the venerable TRS-80 consisted of a 10-square -mile grid. And I discovered that if I took off and flew straight ahead I'd arrive back at the starting point, and could make a nice straight-in approach to the runway. I'm wondering if this lake is going to pull a trick like that on us. But a study of the map indicates we're still flying away from Chelan Airport, and the extremity we're flying toward is the edge of still another square. This scenery within a scenery motif is an old one in FS, and although it might lure us on, I'm recommending we do a 180 to the left and head back to Chelan. Please do.

Done! And now we have the bright Okanogan range ahead once again, making for a very nice scenic indeed. If you can spot it, point right for the gap, where the lake enters between the mountains. And perhaps be on guard for that sudden altitude change—it should snap us right down to about 17-1800 feet again. Presently, I'm at 3,200 feet and the last green mountain to my right is just slipping out of sight below me. Chelan looms ahead in all its glory, although from my perspective it represents an optical illusion; it looks like the lake assumes two levels, as if it climbs an embankment where it meets the mountains (see Figure CW.3).

And just now the ground drops away, but the altimeter registers no gain in altitude—or loss either. Weird! And now the ground rises up again—still no altimeter changes. And ground dropped away again!

Some green shapes just flitted by on the scenery. Watch for them, as they're easy to miss. I expected perhaps the altitude change would accompany the shapes, but my altimeter still reads 3,200—well, 3,100 now. I don't know what the mercurial green shapes were, but FS wouldn't be FS if it weren't for a host of such mysteries.

Tell you what we'll do... You see the flat area to your right, this side of the mountains? That area is what is represented by the green-stripe area on the map. Let's follow it to the right and around the extremity of the mountains. Then we should be able to pick up the Columbia River and land on Chelan 02 (the reciprocal of Runway 20 whence we took off), giving us a nice approach through the mountains. And anyhow I'm in a river mood. Plus, I had you put the Observer in a position for watching an approach and landing on Runway 02. Maybe I had a hunch?

Lose some altitude as you fly. I don't think we're going to experience the reciprocal of the altitude leap that we (or I at least) witnessed on the way out. Get down below the peaks of the ranges, and stay in fairly close to them—it's more dramatic that way. (I'll share a secret with you: I just saved the flight using the title "Chelan Save In Case," 'cause I'm not familiar around here, and if I get too low or too close I can go back and fly this final segment of our Chelan adventure without starting the whole thing over again. May I respectively suggest you do the same—if only for other reasons shortly to be revealed?) I'm leveling off at 1,000 feet (Figure CW-4).

Let the river dictate your first and subsequent turns. Stay over the middle of it. After the last bend before that last mountain

ahead we should be able to spot the airport (and the observer should be able to spot us). Remember, the airport is back in a bit from the riverbank. Keep a sharp lookout. And keep checking the observer view. (I just did another precautionary save, this one titled—with some evident desperation—"where's airport" (not even a capital W). And although I didn't need "Chelan Save" etc., it turns out I did need "Where's" etc., because it turns out I forgot the altitude of the departure airport. So if you're still okay while reading this, GET SOME ALTITUDE as soon as possible, or you'll never see the runway at Chelan. Field elevation is 1,266, so something on the order of 2,000 feet will do nicely. But do it soon! Or revert to "Chelan Save In Case" (don't say I didn't warn you). In any case, Chelan is *very* hard to spot, because it and its several buildings put in an appearance only at the last minute. Be prepared for some tight negotiations; for example see the one I struggled with (Figure CW.5).

So anyhow... how you gonna keep 'em in the "evergreen" mountains now that they've seen Chelan? Or have you really seen Chelan? To see some quite different aspects of the area, use the very flight you saved at the outset, but this time take the Tower view and the full-screen (W) view, and fly "Radio Control"—i.e. using only the observer view and guiding your aircraft from the ground position. It's not too difficult with the 182 configured slow.

Unless something is very much changed since the beta I'm flying, you'll see some strange effects indeed, in the sky and against the views of the mountains. You may even wonder if you're the only airplane up there. "Dynamic Scenery" indeed!

About the author - Charles Gulick is the author of six books on the various versions of Flight Simulator, the "Fly" series of situation disks, and the recent "Vectors" adventure set for use with Flight Shop. Charlie can be reached on CompuServe at ID [71241, 321]. [MW✈]

Really amazing...

Nature can be really amazing; and really demanding if your IFR proficiency isn't at its peak. Unfortunately, this often requires more time and money than most pilots can invest.

Jeppesen's amazingly real **FS-*200* Instrument Flight Simulator** helps keep your IFR skills ready for whatever nature demands. The unique, photorealistic instrument panel presentation makes it just like being there, in the convenience of your home or office.

The FS-*200* lets you: • Practice in any kind of weather with full or partial panel • Fly training scenarios written by experienced pilots and educators • Practice approaches into any IFR airport in the world • Experience the immediate response of the photorealistic instruments.

Complete systems range in price from $799.95 to $1495.00.

For more information on our new FS-*200* and how it can keep your IFR proficiency at its peak, call us today.

...Amazingly real

JEPPESEN
Sanderson Training Products

Call 800-894-9501 or 303-784-4274 Fax 303-784-4153
to order your FS-200 demonstration video or request your FREE catalog.

Review Of: Papa Tango's FSFX

FSFX promises that "your world will never be the same again" and I guarantee the truth of that statement. New engine sounds, Boeing 737-300 in different liveries, new cockpit panel for the Boeing, new buildings, new textures for towns, cities, countryside and mountains, changed shorelines, and two serious manuals are just some features to be found. This is a truly comprehensive and extensive upgrade for MS Flight Simulator 5.1. Papa Tango, the developers, have adopted a no area spared approach when they use the term upgrade. Beautifully taken screenshots of what is on offer along with system requirements (min. 486 PC 33MHZ) decorate the box, and inside there is a registration card, jewel cased CD ROM, and two manuals. Loading is straightforward, and while FSFX will work with the default program it really shines if you have Flight Shop, MS Paris, New York, Caribbean, Japan, Europe's 1 and II. During install, it searches your flightsim directory and confirms what scenery addons are installed and that their directory paths are correct. Backing up the various directories affected by FSFX is recommended during setup and this I would suggest should be done. Installation is quick and upon immediate start up of FS5.1, there is a noticeable difference.

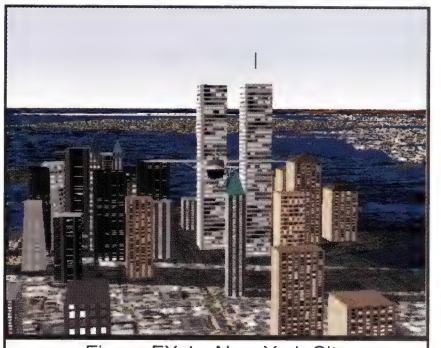


Figure FX.1 - New York City

Figure FX.2 - Enhanced runway texturing

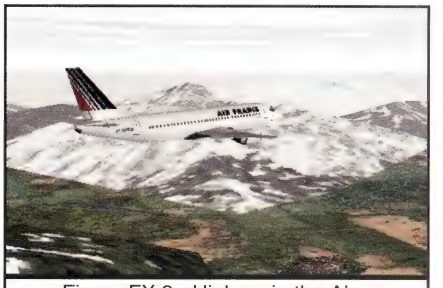


Figure FX.3 - High up in the Alps

Figure FX.4 - More realistic clouds

Figure FX.5 - Even airports are enhanced!

"All changed, changed utterly....." (W.B Yeats)

If, your startup situation places you at Meigs, then the immediate effects of this upgrade are apparent. The runway looks different, the Chicago buildings have taken on a different look, and your trusty Cessna livery is gone forever, dressed up in Brittania colours (cheeky Papa Tango!). The sound is different, more vibrant, and as one takes off, you notice that the runway has seen a lot of action with all those tyre marks. Textureal (patent pending) born out of Papa Tango's involvement in the movie industry is, as I understand it, a process of enhancing the textures of FS without killing the frame rate. The new textures added by FSFX covers buildings, clouds, scenery areas, all runways, coastal areas, water and mountains. FSFX mountain textures are really brilliant. Mountain ranges like the Alps or the Pyrenees in Europe I and II really come to life. Subtle shading and the addition of snow are blended to give a realism that is uncanny. Many towns and cities are enhanced, giving the impression of habitable life as one flies overhead. But, while this works for most areas I found for some peculiar reason that around Meigs FSFX was too much on the eyes. Geneva on the other hand is extremely pleasing as is the Caribbean and New York looks stunning. For me this texturing really works well when flying during daylight because there is too much sparkling and twinkling after dark. Building lighting at night just has to be seen, especially, New York. The buildings light up gradually and when viewed head on are quite good. Snow is a big feature of FSFX and a fresh fall seems to have hit all the mountains everywhere at once. Again it is well done with just the right amount added. There are some extra cool features like golf courses near Miami Intl. and Pointe a Pitre in the Caribbean or check out the late working office staff at their PC's at Innsbruck! Waves crashing against the Miami shoreline as well as swamps in southern Florida are just some samples of the effects on offer. Generally, the scenery effects are impressive and no matter how often I flew I noticed something new every time. Some of the changes are not readily noticeable but the fun is in the finding out.

Planes, Rain, and Manuals

FSFX offers "seven new high detailed enhanced aircraft", but what you get is Jan Moons wonderful Boeing 737-300 in several different liveries. Airlines covered are Brittania, Sabena, United Airlines, Lufthansa, Air France, and KLM. There is no doubt that this plane is about as well drawn as you will get and flies like a dream. If the planes are not enough there is a "How to fly the Sabena" manual written by Guy

Daems, Sabena pilot. This manual takes a sample flight as its means of introducing how to fly the 737. It is interesting, helpful and written by a pilot so it has authenticity written all over it. The main FSFX manual is one of the best I have ever laid eyes on. Apart from the information pertinent to the product, it has chapters on navigation, checklist and circuit flying, aircraft instrumentation and radio, flight plans and a Facts section. The flight plans make for some interesting flying. Flight plan 1, named Chicago Square Dance is a VFR flight in and around the most flown over city in simdom, while Flight Plan 2 has the cutest title to be found in any sim manual, " Alpine by the seat of your Leiderhosen". While the title is amusing the flight is "no picnic". Flight Plan 3 is the piece de resistance, a nighttime jaunt around the New York/ Boston area delivering passengers and goods in the Learjet. Flight Plan 4 is a coast to coast across the continental USA. The time to beat is 8 hours 24 minutes flying the Learjet and you must follow the rules laid out to complete the challenge, and it is tough! Each Flight Plan comes with its own unique setup which is a good way to explore not only FSFX but other aspects of FS5.1 itself. This manual is chocker block full of useful and unusual information and is the perfect companion to the product. Hands up those of you who know what Q code is or what 7700 means when tuned on the Transponder? These terms and more are explained in the "Facts" section. At the back of the FSFX manual there is an exhaustive listing of every navaid for the continental USA. A navdata file plus CH products drivers are available on the CD ROM.

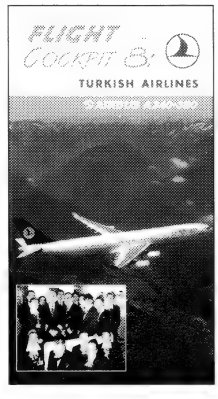
The best way to appreciate the full brunt of this addon is to turn down the visibility to around fifteen to twenty miles. Set up three layers of cloud cover with cumulonimbus as top layer and the sky looks good. I read somewhere that cumulonimbus was " the greatest manifestation of instability" and boy are they to be avoided. FSFX cumulonimbus are nice to look at but beware, flying through these is, as in reality, to be avoided. By setting the cloud layer and visibility effect, achieving a rain shower approaching or rain on a side of a mountain can be obtained. Although you will not have rain on the windshield, the effect plus a little imagination will net the desired result. Papa Tango uploaded various screenshots on CompuServe to show the weather capabilities of FSFX and if you have not yet purchased this product, check out these screenshots.

The "digitally enhanced sound manager" consists of various engine sounds accessed from the FS sound directory in DOS. When in the sound directory typing the word "engine" will display a menu displaying the following choice: 1) Prop, 2) Jet. Prop engine sounds consists of, a Saab 340/Metro, Beech King Air, Lockheed C130 Hercules, WWII Corsair P47, Piaggio P.180 Avanti, Fokker F27/Dash 7, Illy 78, 6 cylinder prop, and an Auster Trainer. Jet sounds covering all needs are F111, Bae146, Boeing 727 to 777, Airbus A320/30/40, DC 10, MD 11, MD 90 and a Lockheed L1011. All these sound files are good and only become active when you choose your plane within FS5. For example, if the default plane is the Cessna and you set up your sound for the 737, the preselected sound becomes active when you choose the 737. The sound manager is simplicity in itself and the amount of sound on offer should satisfy most needs.

As a debut product from Papa Tango I am very impressed. The texturing is good, but as in all things, some will like it and others not. As they say, horses for courses. For the most part I liked the texturing myself and I found the instruction manuals both informative and a good read. The 737-300 is a joy to fly and the panel supplied is excellent. Future releases of FSFX I hope will add extra high standard aircraft and if possible I would like to see the sparkle/twinkling effect dramatically toned down. A selectable uninstaller/restorer would not go amiss as some may like, for example, the sounds but not the planes and with this release there is no way of removing portions of the addon easily. Knowing Papa Tango's propensity to act on customer feedback, I am sure that there are more exciting and ground breaking products to follow. They have set a high standard for themselves, long may they continue.

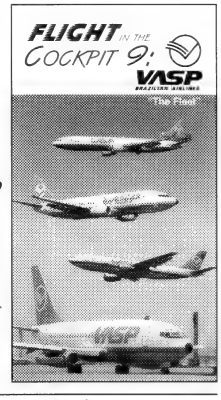
About the author - John McNeely is a service engineer living near Dublin, Ireland. He is a flight simulation enthusiast, participating in the local PC Pilots Of Ireland flight sim club and is a frequent contributor to PC Live Magazine. [MW✈]

JUST PLANES VIDEOS



FLIGHT IN THE COCKPIT 8
Airbus A340-300
Join the crew for a round-trip transatlantic flight from JFK. You're in the cockpit for all the action including takeoff, landing and much more.
60 minutes
$24.95

FLIGHT IN THE COCKPIT 9
Airbus A300
Douglas MD11
Boeing 737-200/300
Takeoff and land at many of Brazil's International Airports in the cockpit of these 4 Jetliners.
60 minutes $24.95



VIEW FROM THE COCKPIT 1&2
Witness the action as the pilots see it from the cockpit.
60 minutes $14.95 each

Worldwide Airport Series
Go plane watching at 40 airports around the world.
120 minutes $24.95 each

We have 50 other videos so please visit:
http://justplanes.bx.com
Email: Justplanes@aol.com
USA Toll Free (800) PLANES-6
International (617) 539-3226
24hr FAX (617) 539-3224

JUST PLANES VIDEOS
PO Box 285214
Boston, MA 02128-5214
(Offices in London, Sao Paulo, Australia & New Zealand)

Shipping & Handling to US & Canada is $4.50 per order.
All videos available in PAL format: $5.00 extra.

Note: This article is a continuation in a series of articles on how to create scenery. It builds upon the foundations and principles already discussed in earlier issues. If you do not have them, it is highly recommended that you perhaps order them as back issues from MicroWINGS (V4N2, V4N3-Sold out-See web site, V4N4).

Making Objects Move At And Around The Airport

In the last issue I already mentioned that it is possible to make certain objects move. An example of these objects can be found at Chicago Meigs Field, such as the moving Learjets and Cessnas, but also the yellow fuel-trucks. In Airport v1.21 you can already find these options in the dyn-sections. In this program the objects are divided into two groups, the first are the stationary objects, the objects that are just parked, and the other group are the objects which are moving. Unfortunately there is just one form of movement possible, and that's the "circuit" (an airplane appears at the beginning of the runway, take-off's, flies a circuit, lands on the same runway and at the end of the runway it disappears). That's all. Happily you can change this with the program SCASM, but lets go first through how to make dynamic objects in Airport.

Stationary Objects

To add the stationary objects you have to use the DYN-section. It isn't really difficult at all. You write somewhere in the APT-file the word DYN and behind that the number of sequence and then the different options. The first is, of course the place. To know where, go to the scene menu and move the cursor to the place you want the object to be. Write down the x- and y-distance, and input them after the options posx and posy. Here is an example:

```
DYN 1
-posx  =  -46
-posy  =  485
```

Hereafter you have to make the choice of what the object will be. You can chose out of the already mentioned Cessna and Learjet, but is can also be the F-18 Hornet (called MILJET), the Boeing 727 (called BIGJET), and the yellow fuel-truck (called TRUCK). The orientation as well must be input, done the same way we did already with the other objects in the last issue. If you chose the Cessna, the Learjet, or the BIGJET you have to input the colors of these objects. For example:

```
-type = BIGJET
-orientation = 124 d
-couleur = 05 05 04 04 02
```

What the numbers represent for can be found in the readme-file of Airport under the heading DYN-section and the values of the colors can be found in appendix 3. The colors are not applicable to the MILJET and the truck because the MILJET is always gray and the truck always yellow. If everything is OK, a Boeing 727 will appear in FS at the place you want it to be, without moving - i.e. just parked. If it doesn't appear, check in the dynamic scenery-menu and be sure all the boxes are switched on and the Scenery-frequency is set to very dense.

Moving Objects

The other possibility is to make an object move. Only one object of this kind is possible at an airport (in Airport v1.21). You can add this with the DYN2-section. Perhaps you think this will be very difficult to add, but actually it is quite easy - because you only have to input two options. The first is the choice of the object, and with the Cessna, Learjet, and BIGJET you have to input a color, all in the same way. So the section...

```
DYN2
-type = cessna
-couleur = 05 04 05 04 04
```

...will make a Cessna appear on the runway and, after flying a circuit, land on the same runway and disappear. That's not so difficult, but the result isn't that beautiful, because you want the object taxiing to and from the runway, and flying all kind of routes. For that you have to use the program SCASM.

Make The Objects Move The Way You Want Them To Move

If you are a beginner at designing dynamic scenery I can advise you to start designing with airport. Put a parked object at the place you want the movement to begin - be it on a platform or on the beginning of a runway - and input directly the kind of plane you want, and if necessary the colors. Now generate this in Airport and take a look at the Oav-****.sca file. The **** stands for the code of the airport, which you have to input in Airport. In this file there will be a section for dynamic scenery, made by Airport. The first part of the section contains

information about the area in which the airfield is situated (the command Area15 defines the area and as a result this section must end with the command End15). The command LatRef defines the reference point. After that the object and its movements are defined:

```
Area15( 50.95   50.85   5.81   5.71   )
LatRef( 50:54:30  )
:OBJ_1
  Pattern( :DYN_1  CESSNA  3  0  )
  Exit
```

The line :OBJ_1 is the name of the object and can be chosen at random. The first option in the command Pattern, the name :DYN_1, is a reference to the lines with the commands how to move, more about that later. Cessna is of course the name of the object. You can input here boat as well, and that will make a moving sail boat. It is not possible to make boats in Airport itself. The numbers 3 and 0 correspond to what kind of object it is and at what minimum scenery density the object will be shown. If you leave the numbers the way they are shown here, the objects will appear at every scenery density. More information about these numbers can be found in the help-file scadyn.txt.

Now the movements themselves must be input and therefor there must (in this case) be the label :DYN_1, because that's the label we used in the pattern command. Of course any word is correct as long as they start with a colon. If necessary, we first have to set the colors with the command setcolor. The values of the colors are the same as in Airport. And after that the position and the heading must be set:

```
:DYN_1
  SetColor( 0  07  )
  SetColor( 1  07  )
  SetColor( 2  04  )
  SetColor( 3  04  )
  SetColor( 4  04  )
  Setpos( 50:54:45.71  5:45:57.63  115.521  )
  Heading( 124  )
```

Notice that the sequence of the colors is the same as in Airport, so it is kept easy. The third number in the command Setpos is the altitude above sea level. It includes the altitude of the airport, but as well the difference of height between the bottom of the object and the ground. This must be done precisely, otherwise the object will be partly under the ground or floating above the ground. This is one of the main reasons why it is easier to do this with Airport, because Airport calculates the right altitude automatically. If you want to do it yourself I can advise you to watch the shadow of the object to check if it is standing on the ground. If you make a stationary object in Airport the following lines are:

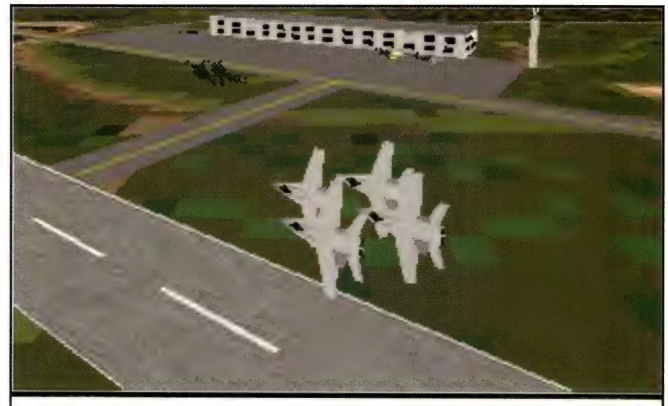


Figure DD.1 - Four Hornets flying in tight formation.

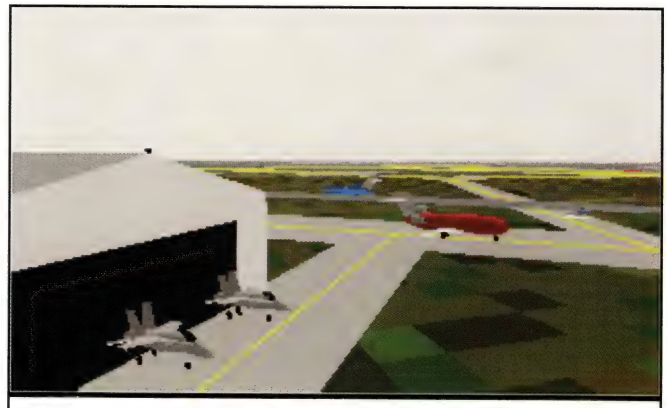


Figure DD.2 - Lots of action at this airfield with dynamic objects.

Figure DD.3 - Several objects you can add into scenery w/Airport.

```
  Sleep
  Jump( :DYN_1  )
```

Sleep means that the object doesn't move. So the only difference between stationary objects and objects in action in Airport is that this command is replaced by commands related to movement. The last command, jump, must be situated behind the commands for the movement. This is so FS knows it is the end of the list of actions and can start over again. Now you can delete the Sleep command and replace it by other commands.

Adding Move Commands In SCASM

In my example I will make a Cessna parked at a platform, taxi to the beginning of the runway, take-off, fly around, land, and taxi back. This may sound very similar to the movement of the objects in Airport, but my movements are more realistic and after reading this you can make any movement possible in FS.

Let's do the taxiing first. For this movement you only have to use the commands MoveXY and Turn:

```
MoveXY( 6 45 -28)
Turn( 2 32.4 15 )
MoveXY( 75 552 867 )
Turn( 2 122.4 15 )
MoveXY( 18 145.2 -92.2 )
Turn( 2 212.4 15 )
MoveXY( 2 -16.2 -25.2 )
```

MoveXY makes the object move over taxiways in a straight line. The first number is the time it takes the object to make this movement. The second and third is the distance in x- and y-direction the object will move. You have to notice that north and east are positive, the same again as in Airport. In this situation Airport can help you a lot. For every movement you can find the coordinates in Airport. If you take the difference between both the x- and y-values, you know the distances of the moment. But, you must have chosen your scale to be one. This way isn't very precise, so you have to change it a little bit after watching the movement in FS, to make objects move exactly over taxilines, etc. The time of the moment can be calculated with help of the Pythagorean theorem of geometry, as described in the last issue. If you have calculated the distance you can divide this by the speed in meters per second to get the time for this movement. If you know that 2 knots is around 1 meter per second, you can calculate the time for every speed in knots. Most of the time a taxi-speed of around 30 knots is fine.

The command Turn means that the aircraft will turn to the course given with the second number. The first number is for the time this movement takes, and the third for the turning radius in meters. If you are taxiing around, most of the time a turning radius of 15 meters is OK. The time necessary for it can be calculated if you know the distance the aircraft will taxi during the turn. The outline of a circle is twice the radius times Pi, so if the radius is 15, the outline will be 2*15*3.14=94 meters. If you make a turn of 90 degrees the distance will be a fourth of the whole outline so 90/360 * 94 = 24 meters. The distance divided by the speed (in meters per second) gives the time. Don't forget that if you make a turn after a movement, the movement must stop 15 meters before the turning point (if you make a 90 degree turn). This is because the turn itself takes some distance as well. Now it's time to input the route to get to the beginning of the runway.

Making a Proper Takeoff

Perhaps you noticed already that if you use the MoveXY-command the aircraft will start moving with a shock. This is of course not possible if you have to drive with high speeds, such as during the take-off. For this you have the command accelerate. But first it is used to make the aircraft stop before the takeoff. This can be done with the command hold, and after that the time in seconds to stop moving:

Don't be surprised if your computer grows wings!
aeroSOFT™
Does it annoy you when you have to remember all those key combinations? Try ACP and you'll never look back. Allow the PC pilot the freedom to rule the skies and get on with the important thing.... flying. (for FS5/6) $499
Combi FS+ATP $549
AIRCRAFT COLLECTION
SCENERY DESIGNER
ATP-Scenery Germany
FCS
FLIGHT CONTROL SYSTEM
Now it's your turn to be the test pilot. Try out these fascinating aircraft and recreate the feeling of the first flights in this unique collection of historical aircraft. Enjoy the realism, relive Chuck Yeager's legendary flight in the Bell X1, fly the Me262 or break the soundbarrier in the Concorde. $39,99
Scenery design has never been easier. With this programme you can enhance existing scenery or create your own almost as fast as you can say "aerosoft's Scenery Designer for Windows". Point and click under Windows 3.11/95 and change the (FS) world. $49,99
For all those ATP pilots who've always wanted to visit "good old Germany". This highly accurate and detailed scenery is also recommended for VFR pilots. So join a European airline and start a new career with ATP-Germany. $49,99
Now FS 5 pilots can enjoy ATC controlled flight. Connect a second computer and enjoy a moving map showing your exact position,a flight planning feature and ATC controlled flight from departure to destination. With an optional soundcard, you even hear the controller's voice. $49,99
aeroSOFT GMBH
The Flight Computing Company
Lindberghring 12 · 33142 Büren · Germany
Phone ++49 2955 7603-10 · Fax -33 · www.aerosoft.com
Available through Flight Sim Central and other fine resellers and retailers

```
Hold( 5 )
AccelerateXY( 18  2.1  -278  -439 )
```

And after that the Acceleration of the takeoff starts with the command AccelerateXY. It is easy to make a take-off with the Cessna first by yourself, to know where the aircraft will become airborne, and after that to get a hold of the distance with help from the scene menu of Airport, as described with taxiing. The first number in this option is the distance of the movement, and here as well you can control the speed. The difference with the MoveXY-command is the second number, which stands for the acceleration, A number higher than one means that the object will start slowly and will move faster and faster, and a number less than one means the opposite, a fast start and then slowing down. The third and fourth number are for the distance in x and y-direction.

After this the aircraft has to climb into the air. This is done with the commands:

```
PitchTo( -15 -5 )
Accelerate3D( 24  2.0  -556  150  -878 )
Gear( up )
PitchTo( 0 5 )
```

PitchTo means a change in the pitch angle of the aircraft. A negative number means that the nose is going up, in this case to 15 degrees, with a rotation speed of 5 degrees per second. Followed by an acceleration, in x, z, and y direction, so climbing into the air. The first and second numbers are the same as in AccelerateXY, but now the acceleration distances are in x, z, and y distance (in that sequence, so first the x, then the height, and then the y-direction). Here the aircraft will climb in 24 seconds to 150 meters above ground level. After this, the aircraft will put up the gear and lower the nose to 0 degrees. Notice the rotating speed here is positive, which means that the nose is going down. Otherwise the nose will turn 345 degrees up and the aircraft will fly backwards.

Making The aircraft Fly In The Air

Now that the aircraft is in the air, you can make it turn, climb, etc. Climbing is done in the same way as a take-off, so I will only describe a turn here. First you have to change the bank - this can be done with the command BankTo:

```
BankTo( 30 6 )
Turn( 8 122.4 200 )
BankTo( 0 -6 )
MoveXY( 20 675 -429 )
```

This is more or less the same as with PitchTo, the first command is for the bank angle and the second for the rotating speed. Here positive is a left turn, so left wing down, right wing up... followed by a turn-command. This is the same as on the ground, with the difference that the turning radius is much bigger of course. After the turn, the bank angle will have to go back to zero again, and in my case the turn is followed by a movement, the same again as on the ground, only much faster. Perhaps you noticed already that this is actually a piece of cake to do.

And Finally... The Landing

After the flying around you have to land again. For this, fly to around 800 meters before the beginning of the runway. You will likely have to change the values a little bit after watching it in FS, because it isn't as precise as you might expect. For an ILS approach make sure that the aircraft makes a descent at an angle of 3 degrees to the runway, so if you are 800 meters before the runway the altitude must be 800 x TAN(3°) = 41 meters.

```
Gear( down )
Move3D( 3 -48 -4 -75 )
PitchTo( -5 -10 )
Move3D(  24 -381 -36 -600 )
```

I have divided the approach in two parts to make a flare possible, you can see with the command PitchTo; the nose is raised a little bit to the air the make sure the aircraft will land on its main gear. And after the touchdown the pitch must be zero again and the aircraft must slow-down:

```
PitchTo(       0 10 )
AccelerateXY(   13 0.5 -139 -220 )
Hold(          3 )
```

Now its time to taxi back to the same place the movement started, and after being parked for a while (with the hold command), the aircraft will start over again with the same circuit.

Other Possibilities

Of course, it is also possible to make totally different movements/circuits. You can think of fighters flying formation flights, or to make an aircraft flying an approach, so that you can follow the aircraft to learn how to land, etc. The possibilities are endless. You can also think of aerobatic flights, rolls are very easy to make just a bank turn of 360 degrees, more difficult is to make a looping, because you have to change the movement the same with the standing of the nose, but it is possible. So go ahead and fly around with commands, instead of flying with a stick.

About the author - Matthijs Becker is an avid flight simulation enthusiast living in the Netherlands. If he is not flying, then you'll find him designing scenery for his native homeland. He can be reached via email at [L.J.Becker@inter.nl.net] on the Internet. [MW✈]

Upgrade Your Flight.

$10 Rebate On Flight Unlimited™ For Windows® 95.

Hey Microsoft® Flight Simulator fans time to park a sleek new aerobatic hotrod next to old reliable.

So power up Flight Unlimited for Windows 95 and take off.

You get all the incredible features of the original award-winning Flight Unlimited plus five additional airfields and the hassle free installation and configuration of Windows 95.

*And $10.**

FLIGHT™ UNLIMITED

The New Standard in Flight Simulation

Look for our Win96 Sweepstakes on specially marked packages of Flight Unlimited !

*$10 rebate for owners of Microsoft Flight Simulator and Flight Unlimited DOS. See package for details.

Available in major retail outlets or order direct (800) 360-7455

©1996 Looking Glass Technologies, Inc. Microsoft, Microsoft Flight Simulator, Windows and the Windows logo are registered trademarks of Microsoft Corporation. All rights reserved. Features full support for a variety of peripherals including control yokes, joysticks, rudder pedals.

A Looking Glass Technologies Production

http://www.lglass.com

™ Distributed by Virgin Interactive Entertainment (INTERACTIVE entertainment)

by Michael Fisher

Did we ever have an amazing time at SimuFlite last night?! Mike Greenwood and I took turns left-seating a Falcon 50 for half an hour each and held our own surprisingly well, even after the instructor mistakenly failed all three engines on us during one approach. We all went back to the hotel and talked our heads off late into the night. Needless to say, sleep was a rare commodity at this conference. Last night was no exception, and I'm thoroughly exhausted—but I dare you to try to wipe this grin off my face! The MicroWINGS Conference on Flight Simulation was a flight simulation adventure that you just didn't want to see end...

I remember our landing distinctly—although not for the reason you're probably thinking. As we were on short, short final for runway 36L at the southwestern corner of the DFW complex, I noticed the SimuFlite building out the left window of our 757, looking exactly like it does in the MicroWINGS DFW scenery! I couldn't help but ask myself whether this was live or whether it was Flight Simulator. I'd find myself asking this question repeatedly as the conference progressed, amazed at the technology itself, amazed at how far our technological horizon has advanced in the past two years, and amazed most of all at the diversity of the 140+ die-hard hobbyists and hardware and software developers who came together in Dallas for a few brief days in late October to immerse themselves in it all.

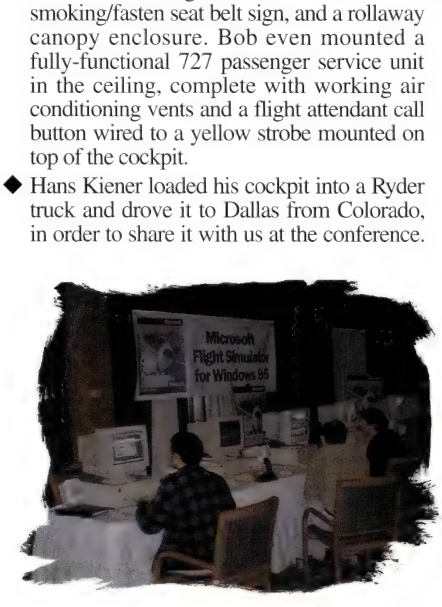
Our location this year was the American Airlines Training & Conference Center, a sprawling yet cozy facility located just south of DFW which the airline itself uses regularly for flight crew instruction. The conference began on Thursday, October 31, with registration and an hors d'ourves reception hosted by Microsoft. After spending an hour renewing old friendships, meeting new faces, and enjoying all the shrimp cocktail, stuffed mushrooms, Texas BBQ sausage, and a spread of other hot foods we could eat, we then moved on to the hotel's 300-seat, state-of-the-art auditorium for a brief welcome from MicroWINGS' President Robert MacKay.

Microsoft's Andy Silverman and Michael Mott took the podium next for the conference's opening presentation—the public unveiling of the now-shipping Microsoft Flight Simulator 6.0 for Windows95. They explained that in order to make Flight Simulator available to a broader market, Microsoft wanted this version of Flight Simulator to be much easier to install than previous versions—and that Windows95 was of course the vehicle through which this would be accomplished. Microsoft also recognized that backward-compatibility would be a critical issue for the core FS5 user base. The resulting product uses the Windows95 interface and 32-bit hardware drivers, preserves most FS5 keyboard commands, and is compatible with most FS5 scenery and FSFS aircraft. It features enhanced instrument panels which include a working HSI, two additional aircraft (a 737-400 and an Extra 300s with a G-meter on its new panel), and an improved graphics engine capable of generating more complex scenery at a faster frame rate than FS5. The default scenery has been enhanced with all major U.S. coastlines, lakes, and roads, using data taken directly from Microsoft Atlas. Microsoft next discussed a few of its plans for future versions. If all goes well, GPS navigation, 3D video board support, and 800x600 display resolution may be available in the next release.

Following Microsoft's presentation, we promptly poured into the exhibit room and spent the rest of the evening enjoying a vast collection of breathtaking new products and some wonderfully clever applications for existing technology. Here is a listing of all the exhibits on hand...

The Exhibit Room

- The MicroWINGS cockpit - Robert MacKay's perpetual work-in-progress sure took on a life of its own over the past two years! This time the cockpit features twin monitors, dual linked controls, a pair of Thunderseats, and a headset intercom system to give the feel as well as the look of real flight, and dozens of working switches wired to the sim PC via an R&R Electronics EPIC controller. The cockpit also sported a scanner, strobe lights, a Hobbs meter, a no smoking/fasten seat belt sign, and a rollaway canopy enclosure. Bob even mounted a fully-functional 727 passenger service unit in the ceiling, complete with working air conditioning vents and a flight attendant call button wired to a yellow strobe mounted on top of the cockpit.
- Hans Kiener loaded his cockpit into a Ryder truck and drove it to Dallas from Colorado, in order to share it with us at the conference.



Hans salvaged the yokes, rudder pedals, seat, and console assemblies from the wreckage of a 727 crash and mounted them on an elevated plywood platform large enough for three people to occupy comfortably. Eight IPX-networked PCs, each running a copy of ATP, 3D-AGS, and Nomissoft's new MD-83 flight model, drove the master simulation and the cockpit's seven video displays. A panoramic out-the-window view was provided by three 61" projection displays mounted several feet in front of the cockpit. Two 21" monitors and one 17" monitor provided 3D-AGS instrumentation and engine gauges. Hans mounted a Flight Link TR-1 radio stack in the center console to handle the navigation radios and a 5" color SVGA monitor in the console and wired it to the 727 console's alphanumeric keypad.

- Sierra's upcoming Pro Pilot simulation, expected in stores during the second quarter of 1997 (read on for details about this exciting new product), was up and running on multiple PC's.
- Business Interiors' enclosed cockpit "cubicle," a durable wooden sit-in enclosure large enough to fit you, your computer and monitor, and your flight controls comfortably. The sturdy enclosure, which at first glance looks like something taken from a Jules Verne novel, provides both an attractive piece of furniture as well as a practical alternative for FS pilots who want to enjoy an enclosed cockpit but don't care to build their own from scratch.
- AETI's new air-transport quality flight yoke. Marty Arant appears to have found a sweet spot in the core FS market—he nearly sold out his first full production run.
- Apollo demonstrated its Europe II, Scenery & Object Designer, and other products.
- Desktop Wings' author Alfred Poor was armed with copies of his popular new book, "Cross Country: 30 VFR Flights for Microsoft Flight Simulator 5.1."
- Jeppesen's FS-200 high-end IFR simulation, coupled with some excellent yokes and flight controls provided by Precision Flight Controls.
- Microsoft's Flight Simulator 6.0 for Windows95, accompanied by Sidewinder Pro joysticks and a few FSFS aircraft migrated to FS6 using the recently-released aircraft and adventure converter.
- CHS Distributing demonstrated CH Products' first entry into the realm of force-feedback controls. This wonderful new technology faithfully transmitted the feel of skids, bumps, and turns directly to your wrist, and holds great potential for future flight simulation applications.
- Fly-It Simulators' General Aviation Control Panel. This attractive, prefabricated instrument panel connects up to your PC via the supplied EPIC controller and lets you control your sim's flight control, view, and navigation functions from real knobs and switches instead of the keyboard. R&R Electronics were also showing off a new feature just recently added to their EPIC controller—the ability to capture FS5 airspeed and altitude values and display them on real analog

instruments.

- Flight Unlimited for Windows95, Looking Glass Technologies' entry into the general aviation FS market. Please see the review of Looking Glass' presentation below for more information.
- Flight Sim Central had FSFORUM sysop and MSN flight sim forum manager Mike "Gunner" Thompson manning the booth, providing on-the-spot service for eager customers who wanted to bring home a few souvenirs, and plenty of war stories for anybody who wanted to come over and chat.
- The ELITE IFR flight training environment, by Aviation Teachware Technologies. Please see the review of their presentation below for more information.
- Interactive Creations had a live connection to the Internet to showcase their Warbirds WWII live, real-time flight sim.
- B&G American brought down their panels and monitor covers that transform your business looking desktop setup into a virtual cockpit.
- Aerosoft was present and showing their new scenery designer for Windows95 as well as their many other products.
- Laminar Research's chief programmer, Austin Meyer was showing X-Plane and answering any questions about this very good simulation.
- Mailsoft was present to show their newest product, ATP around the world.
- LAGO demonstrated their latest scenery, Venice, as well as providing information on upcoming products including Airline Simulator.

The Conference

The next day began bright'n'early with a buffet breakfast in the hotel's Black Hawke formal dining room, followed by a morning filled with outstanding presentations. Bruce Landsberg, the Executive Director of AOPA's Air Safety Foundation (ASF), briefed us on the aviation industry's efforts to persuade the FAA to allow pilots to log time spent using PC-based flight simulators. You won't find Landsberg calling these programs a "simulator" or worse yet, a "game." To him, they're training devices—"part task trainers"—which are highly effective at teaching limited sets of specific piloting skills such as scan patterns, procedures, and situational awareness. ASF has accordingly proposed that the FAA allow student instrument pilots to log up to 10 hours of PC-based sim time towards primary instrument training requirements provided that a CFII is sitting with the student throughout the simulated flights. Most importantly, under the ASF proposal the student must pass a real instrument checkride in a real plane. Landsberg reported that this proposal is gaining acceptance within the FAA, and that it now appears closer than ever before, to giving credit for time spent training on PC-based simulations.

Bill Wissore of Flight Safety International (FSI), a leader in the pilot training market, discussed his company's relationship with Microsoft. Recently, FSI conducted an informal study in which several of its new students who were beginning their flight training from scratch and without any prior knowledge were given an opportunity to practice procedures with FS5 before getting into the real airplane for the first time. Flight Safety found that these students were more confident and comfortable in the real aircraft than students who didn't have this exposure. Intrigued, Microsoft approached FSI for assistance with the development of FS6. FSI contributed to FS6's flight models, and future FS versions are expected to benefit greatly from this new relationship. Flight Safety hopes to help improve the weather model, and it may become an exclusive developer for some FS6 adventures and other add-on enhancements.

Next to the podium was Simutech's Tim Frerricks, demonstrating his new Approach Builder utility for FS5 and FS6. Approach Builder generates a realistic, ready-to-fly FSFS adventure.

Enrico Schiratti followed with a review of last year's Interstate 7 competition. Pilots organize into teams and square off against each other in a lengthy, cross-country, simulated air race. Custom IPX network software allowed the use of projection monitors for the spectators and linked all the teams to a single PC that was used to monitor their positions. Schiratti's team itself used a multi-monitor setup driven by five PCs, which allowed the main PC to run the simulator and display only the instrument panel, while three slave PCs gave full-screen outside views and a 5th PC handled navigation and flight management.

Robert MacKay next spoke about homebuilt cockpit sound and display systems—key look-and-feel issues vital to building a realistic cockpit. He explained that the use of powerful amplifiers, subwoofers, intercom systems, and aviation-band scanners provide an excellent means of fooling your senses into believing that you're in a real aircraft. The choice of visual displays ranges from simple monitors to complex collimator and projection systems, or even multi-monitor setups, and MacKay described the cost-versus-realism decisions which the cockpit designer will need to make.

Following a short refreshment break, Laemming Wheeler previewed some exciting trends that he and his fellow Skunks have been working on. We now expect to soon see a new generation of FSFS aircraft which feature highly accurate body designs with truly circular fuselages, see-through windows, interior detail when viewed from both outside as well as inside the aircraft, and the use of textures to depict surfaces with stunning detail and realism. He also showed a few examples of some new static aircraft placement utilities which should greatly simplify the process of adding aircraft into existing scenery. The scenery files created by these utilities silhouette distant aircraft and optimize the use of parts and textures, thereby allowing dozens of aircraft to be placed in the same scenery without killing your frame rate.

Spot Imaging, which along with MicroScene played a vital role in the development of FS6's Lake Chelan scenery, was next at the podium. Mark Whalley and his company have taken satellite-based photo-realistic scenery design to an entirely new level—Spot Imaging specializes in providing satellite imagery for scenery design at a dense 10-square-meter-per-pixel resolution, upon which it superimposes detailed, tailored residential/urban/rural area scenery based on real-world data.

Sierra concluded the morning's presentations

with a demonstration of their Pro Pilot simulation, now under development. Sierra brought subLOGIC's scenery database and flight model technology together with its Dynamix division's rendering engine and terrain editor, yielding a well-rounded general aviation simulation that offers crisp instrument panels and a highly realistic out-the-window views. The variety of aircraft that will be bundled with Pro Pilot—A Cessna 172, Beech Bonanza, Beech Baron, King Air 300, and a CitationJet—will provide an incremental, stage-by-stage training approach for novice sim users, and is intended to appeal to pilots of all skill levels. One of the program's more notable features is expected to be its instruction, grading, and certification-style

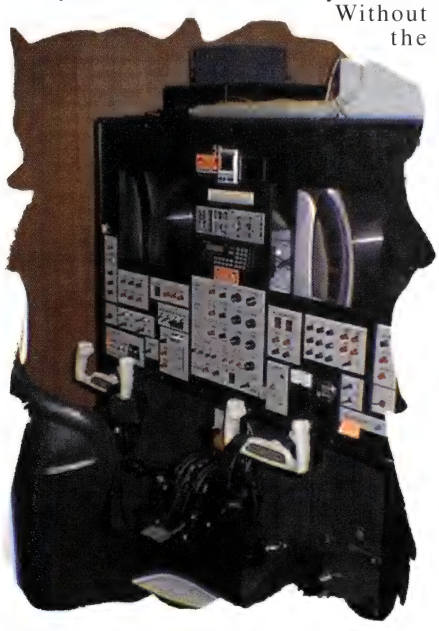
training module, accessible at any time during flight. The scenery is based on aerial rather than satellite photography, and includes 27 million elevation points in the continental United States.

After lunch, the exhibit room opened for business once again while those of us who signed up for tours headed for the buses. Our tour groups visited Fort Worth Center, the American Airlines training academy and the C.R. Smith Museum—the only museum in the country focused on the history of commercial aviation—and Southwest Airlines' simulation facility. MicroWINGS would like to give an extra-special thank you to Southwest flight instructor

Joe Marott, who spent hours of his time giving us rides in Southwest's state-of-the-art, full-motion 737-300 simulator. Person after person returned to the hotel from this tour looking like they'd just had a religious experience!

Many door prizes were given away during Friday night's dinner. After dinner, we enjoyed a dessert reception hosted by Sierra… and of course, the exhibit room once again became the focus of activity late into the night. Several of us headed for SimuFlite for a part of the evening to enjoy some discounted stick time in their Falcon, Gulfstream, Citation, and Learjet simulators.

The following day brought another fast-paced morning of presentations. Leading off in the amphitheater was Aviation Teachware Technologies (ATT) and its fifth release of the popular ELITE high-end IFR simulation. ATT's John Dixon showed us many of the sim's improved features, which includes authentic voice-based ATC. Instrument failures now occur in the simulation just as they would appear in a real aircraft—for example, the attitude indicator won't simply blank out if the vacuum system fails. Rather, it'll slowly roll over. Without the



student knowing about it beforehand, the instructor can designate time periods for emergencies to occur, and can set up weather parameters that vary over time.

Dan Maas has always been fixture at the MicroWINGS conference. This year, he opened his presentation with a video of the animated computer graphics work in which he is currently engaged. Although we may not see graphics quite that sophisticated on our FS displays in the next two years, Dan feels certain that 3D hardware acceleration will soon make available fluid, true-color, detailed 3D graphics that will dwarf today's capabilities. The 32-bit Windows environment, and DirectX technologies like DirectDraw and Direct3D, will also make it easier for developers to incorporate the hardware's capabilities into tomorrow's sims. Dan noted that after video technology takes its next great leap forward, the next critical factors limiting sim performance will be memory, CPU, and system bus speed. Within the next five years, he would thus not be surprised to see microprocessors clock in at 600MHz. Emerging optical storage technologies like DVD may allow rapid access to 18Gb or more of storage, thus making photo-realistic scenery of entire countries possible.

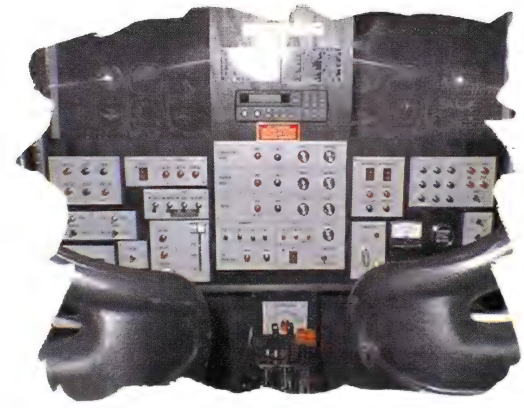
Michael McCoy of Interactive Creations followed with a presentation of "Warbirds," one of the most popular Internet-based flight simulations available today. It was specifically designed to work with 14.4Kbps and higher 32-bit TCP/IP connections and attracts hundreds of pilots at a time to fly together in real time in the same arena. Warbirds also offers a strong community aspect by supporting squadrons, bulletin boards, real-time conferencing, and occasional conventions.

Aerosoft was next on the stage. Winfried Diekman and Richard Donaldson gave us a brief overview of the company's history and some of its earlier products. Its flagship product is its new FST scenery designer. Released for FS5 in 1995, it has since been enhanced with a front-end graphical interface that is capable of laying out airports, taxiways, and scenery objects with just a few points and clicks. The most impressive feature we saw was its ability to import and manipulate complex bitmaps—such as scanned aerial photographs—and add topographic elevation points to them with tremendous ease. Words alone cannot adequately describe the results which this tool can produce in the hands of a talented designer.

Constantine Hantzopoulos of Looking Glass Technologies joined us next to demonstrate its popular aerobatic simulation, Flight Unlimited, and to discuss the company's future plans for its general aviation simulation products. Looking Glass is now working on Flight Unlimited II, which at this point, we may see in time for the 1997 holiday season. It will move away from aerobatics and focus instead on providing a highly-realistic VFR flight experience. The real-world scenery database will at first provide small areas of about 80 square miles at resolutions of up to 4 meters per pixel. At the outset, the sim will include scenery from areas such as San Francisco Bay, featuring 45 airports from Sacramento to San Francisco on south to Monterey. It is expected to feature interactive ATC encompassing ground, tower, and approach facilities. Initially, it will offer a choice of the Cessna 172, Piper Arrow, and DeHavilland Beaver. Turbine aircraft and transports are expected to follow as an add-on, along with additional terrain.

Austin "Have Some More Coffee" Meyer from Laminar Research took us to the morning refreshment break with a demonstration of X-Plane. Originally designed to assist homebuilt aircraft designers who needed an affordable means of testing a new designs before beginning construction, its ability to accurately model virtually any real-world aircraft, its real-world scenery database, and its impressive weather effects—including realistic rain, snow, and thunderstorm conditions—has attracted a significant following in the general aviation sim market. X-Plane v2 will also be able to model any helicopter, making it the first non-combat, accurate helicopter simulation.

Ugo Grandolini and Umberto Compicchioni, better known as LAGO, led off the presentations following a short refreshment break with an awesome preview of their FS Venice

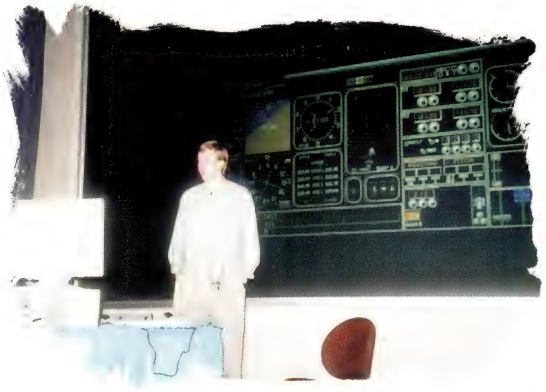


scenery. The scenery features highly-detailed building textures which include paintings on the sides of buildings. Ground textures switch off automatically at night to eliminate annoying flashes and dramatically increase the frame rate—thus allowing some stunning night lighting effects to be added to the scenery. The most stunning element in this scenery, however, is LAGO's new scenery design technique which they call RealTerrain. This technique utilizes retouched aerial photographs rather than satellite images combined with thousands upon thousands of elevation points taken from USGS topographic data, displayed at 3 meter-per-pixel resolution. The results were so realistic and the frame rate so smooth that we just couldn't believe they were being generated by the same old FS5 and FS95 graphics engines.

Urs Wildermuth of Mailsoft followed up with a preview of his new "ATP Around The World" scenery package for ATP/3DAGS. Designed to bring a worldwide cross-country rally experience to ATP, his scenery adds airports from Malta through Europe and the Mid-east, on through India, Indonesia, Australia and Antarctica, and back north through Argentina and Brazil, where the rally ends in Rio de Janeiro.

Wrapping up the day's presentations, Simon Hradecky unveiled the first of his new ATP advanced flight models, an MD-83. It is a rare treat to find an entertainment-market simulator that provides a flight model which rivals the high-end IFR training sims. In addition to its excellent overall feel and performance, this model is the first ATP aircraft which features an accurate tricycle landing gear with three distinct scrape points. Simon has also enhanced the ATP autopilot to include Category III autoland capability. The autopilot easily held its own against a strong crosswind, maintaining the correct crab angle followed by a seamless slip to touchdown, evoking loud applause from the audience.

We broke for lunch, followed by an afternoon filled with several hours of stick time in the exhibit room, and a second round of offsite tours. Dinner and some more wonderful door prizes came and went, and we then headed back into the exhibit room for one last fun-filled



evening. Tomorrow would bring one final set of presentations and the conference wrap-up… and most of us would then say our good-byes and head for the airport.

John Trindle opened the final morning of presentations with a preview of his new IFT-Pro version 6. It's been given a facelift and has been reworked to run as a true 32-bit Windows95 application, eliminating setup and configuration hassles. The panels are not photorealistic but are user-configurable, giving real-world pilots the ability to alter the instrument layout to closely match their real-world airplane's panel. A Plus Pack is available which provides conversion utilities, additional panels and gauges, and enhanced event language commands for the ATC environment.

Steve Garry took the podium next to discuss two popular activities which can be found on CompuServe's Simgames forum. The first, "Simgames U.", provides written tutorials and live instruction in flight techniques, aircraft design, and scenery design. Steve also described the forum's Fly Online event - Pilots who have a single PC available can log onto Simgames using the Fly Online software and get a real-time view of the ATC arena in which other forum members are flying. Pilots with two PCs can fly in real time with many other pilots in a common arena by linking their Fly Online computer to their FS5 or ATP computer via a serial or IPX connection.

Marty Arant of AETI came to the podium to demonstrate his new professional ATP-quality yoke. Marty also demonstrated Apollo's popular DOS-based scenery design tool, appropriately called "Scenery and Object Designer." SOD is capable of generating complex, sophisticated scenery for FS5 and FS6.

FSFORUM Associate Sysop Michael Fisher and staff member Michael Greenwood gave us a comprehensive look at the forum's semiannual Fly-In events. These electronic teleconferences are designed to give participants tangible goals to reach in cooperation with other forum members. On the day of the event, each participant flies from the scenery airport nearest their home to a destination airport selected by the Fly-In planning team. Upon reaching the airspace, the pilot connects to a Fly-In team member via FS5's dual-player feature, and lands normally while the team member watches the landing from the "control tower" at the destination field. The tower observer is simultaneously online to an FSFORUM conference room and broadcasts a description of the landing as it's happening.

MicroWINGS' Robert MacKay joined us again for a discussion of another important aspect of cockpit design—the flight control systems. He explained how R&R Electronics' EPIC controller can be used to connect real equipment, aircraft controls, and instrumentation to the simulator, further enhancing the look and feel of real flight.

Stephan Schaefer of PILOT's demonstrated his company's latest aircraft, scenery, and adventure packages. The high-quality FSFS aircraft included beautiful renditions of several types of Airbus aircraft in a variety of liveries. Other new products we expect to see from PILOT's in the coming year will include photorealistic scenery for San Diego and a collection of popular European holiday destination airports. Stephan called Urs Wildermuth back to the podium to give us a preview of his new multimedia offering, marketed by PILOT's, called Russian Aircraft Multimedia. This CD focuses on many former Soviet aircraft and the contributions they made to historic and modern aviation. It includes a hyperlinked Russian phrase book and dozens of video clips of a variety of different aircraft.

Enrico Schiratti returned to the podium to demonstrate his popular Schiratti Commander utility for FS5 (a.k.a. "Flight Zone") the utility allows you to display detailed maps of your scenery files. It also includes a flight route planner which calculates a great circle route between any two locations you select. If essential navaids that you'll need to fly the route successfully are missing, no worries—SC will cut a scenery file for you which adds them to the sim. If you have two computers, you'll be able to connect SC to your FS5 computer via an IPX or serial connection and add some flight management capabilities to the sim. Lastly, SC provides scenery design capabilities for pilots who wish to design new scenery or enhance their favorite existing scenery areas.

Kelly Rotkewicz gave the final new product demonstration of the conference—Maxis' new Sim Copter. This is more of a game than a serious flight simulation, but is nevertheless one that I'd be glad to add to my desktop. Following the Sim City theme—and integrating with cities built with Sim City—Sim Copter puts you in the shoes of a municipal helicopter pilot that must respond to various city emergencies, including fires, robberies, and riots.

Author, columnist, and private pilot Alfred Poor came to the podium to deliver his customary conference wrap-up. He proceeded to roll out 10 ways to qualify for a new simulated pilot's certification which he named the "FS-PPL," or FS-Pathetic Puppy License:

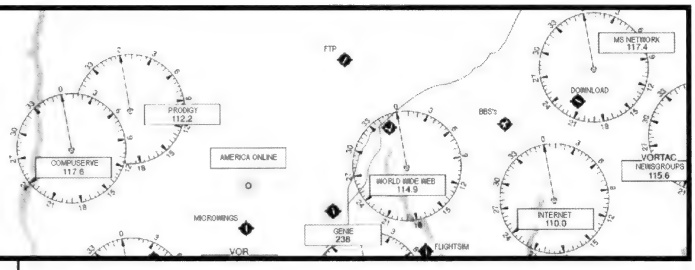
Top 10 Qualifications for an FS-PPL

1. Your office PC contains more FS-related materials than work files or applications;
2. When driving your car, you keep your left hand on the wheel and your right hand on the radio knob, pretending it's really the throttle;
3. When you're a passenger on a commercial flight, you know the approach being made and can point out all the mistakes the pilot makes on the way in;
4. You announce your position in the pattern while you're mowing the lawn;
5. Your homebuilt instrument panel is so complete that you've forgotten what the keystroke is that engages carb heat;
6. You've seen every movie in which a flight attendant bursts into the cabin, screaming "is there anybody here who can fly this thing!?!?"
7. Your wife has let you name your first and third child "Alpha" and "Charlie," but has drawn the line at naming your middle child "Bravo."
8. At the office, you've installed a headset on your telephone and a five-point harness on your seat;
9. (Here, Alfred put up a slide of Hans Kiener's cockpit and asked, "need I say more?"); and
10. You attend a MicroWINGS flight sim conference.

Alfred concluded the conference by highlighting three significant issues which he observed this year. First, convergence and validation—as technology continues to improve and novel applications for existing technology continue to be developed, the line between simulation and real world flight becomes ever blurred, providing mutual benefits to both sim pilots and real-world pilots. Second, the market is expanding at an astounding rate. This year's exhibit hall spoke for itself as a plethora of developers showed off their newest creations. Dozens upon dozens of new commercial, shareware, and freeware products are available, and new efforts are underway to lend cross-platform compatibility to add-on products. Finally, the future will continue to bring incredible new technologies to the market. In the coming year, we should expect to see more realistic textures and truly photorealistic terrain, the addition of real instruments, multiple networked PCs, dual/force-feedback controls in homebuilt cockpits, and 3D graphics acceleration.

We're holding for takeoff now on Runway 35L, ready to leave Dallas. This year, 140+ people from 14 nations came together to experience the best technology the PC-based flight sim industry has to offer. Saying goodbye after a week like this is never easy, and one happy, pathetic puppy is now heading back to DC filled with great memories. The engines are spooling up now…and here we go. 40 knots, airspeed should be alive up front…80, 90, 110, 120, rotate…we've got a positive rate of climb, here comes the gear. ***[MW✈]***

Flight Simulation On-line



by Nels Anderson

Since this column started we've seen an ever increasing growth in the Internet's World Wide Web. At one time my single Web page was one of only a handful of sites for cyber pilots. Now there are so many flight sim sites that you truly need to use one of the many search engines like Lycos, Yahoo or Alta Vista to find them all.

While this growth is good, the one problem with the Web is that all this flight sim information is very fragmented. Unlike a phone line based BBS or other online service you have to visit multiple sites to get all the flight sim information, files, etc. that you want. Until now, only the MicroWINGS web site provided a concise, well-organized, all-in-one site. Now, with the opening of flightsim.com, there is another site as well.

http://www.flightsim.com

Flightsim.com is reachable like any other Web site, but is a complete online service such as you might be used to using outside the Internet. Most Web sites are really online personal pages, since the site operator is telling you what he/she thinks. flightsim.com is interactive since you can both read and post messages, upload and download files, etc.

The need for this kind of Web site was noticed early in the history of the Web by many who've been involved in older online services. flightsim.com makes use of a product called The Web BBS, one company's solution to this need. The Web BBS is produced by Software Creations, a company well known for their phone line based BBS which has won many awards, including being voted #1 BBS in the world two years in a row. The Web BBS was originally designed for their own use to move their BBS onto the Internet and has just recently been made available to others. flightsim.com is the first site to use this released version of The Web BBS software.

A BBS On The Web - When you first connect to flightsim.com you'll immediately notice that this new software is different. For one thing, you need to log in, just like you would on a phone line BBS system. While this will initially seem odd to Web users, it is necessary and is becoming more common on large Web sites. To make full use of the interactive nature of the site it's necessary for you to identify yourself and maintain this identity each time you log on. This allows for the proper handling of such things as messages in forums and even allows for private messages.

flightsim.com is used much like a normal BBS. On logging in you start at the main menu which lists the top level of features. From this menu you can jump into any of a variety of message forums, on topics such as FS5 Scenery or Aircraft, ATP, Virtual Airlines, etc. Also included is a How To section with a collection of tips and tricks and NOTAMs which is a collection of recent news, press releases, etc. It's also fun to see who else is using the site by accessing the Who Is Online function. The worldwide appeal of flight simulators is quite apparent here, as typically only about half the users listed are from the U.S.

Under Features you will find product reviews, including such recent hot releases as Apollo's Scenery & Object Designer, and a list of aviation publications with subscription information. There are also two photo galleries and a Who's Who gallery, featuring many people you'll recognize from the scenery and aircraft you download.

File Libraries - Like most BBS's, one of the most popular sections of flightsim.com is the file library. Files are broken down by topic (i.e. panels, FS5 scenery, Flight Shop aircraft), also just like a BBS. You can view entire file areas or use the search function to find exactly what you want, either by file name or search word. There are thousands of files available so if it's out there, there's a good chance you'll find the file you're looking for.

Message Forums - flightsim.com's many message forums are the best way for the site's users to interact. The Hangar Talk forum is the main meeting place and a good place for any topic related to aviation. All the other forums are meant for a specific topic, say Scenery or Combat Simulators, which makes it easier to find only the messages you are interested in. You should be able to find a forum for any flight sim or aviation topic.

Drawbacks - One of the great things about the Web is all the colorful graphics. This is also one of the greatest drawbacks, as these graphics are often slow to load, especially for those with a slow connection to the net. While most of the images on flightsim.com menus are kept fairly small it suffers from this problem just like any other site. However, it does offer a

solution to this: from the very top of the main menu take the "High Speed Turnoff" and you will have a single non-graphical menu that gives direct access to all of the site's features.

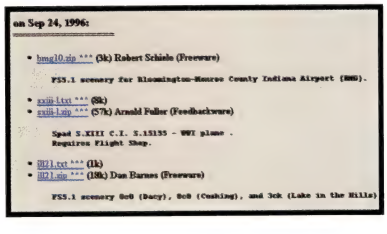
Another problem is that browsers and proxy servers don't handle dynamic Web sites very well. "Dynamic" means that the Web pages change even though the URL or address does not. These kind of pages, such as forum messages, file search results, etc. sometimes cause browsers to display errors or old, cached pages, instead of the new page that should be shown. When using any dynamic site you should configure your browser so that proxies are completely disabled. You may also have to turn off or adjust your browser's internal caching. If you still have problems, using the brower's reload function will usually make the right page display.

FILES FILES FILES

One thing I've learned in over eleven years of running a BBS is that the number one thing most people are looking for is files to download. The flightsim.com searchable libraries offer one answer to this need. Other sites take a different approach.

The ftp site at ftp.iup.edu is one of the oldest meeting places for flight sim users on the Internet. It's also one of the most complete file libraries you'll find anywhere. It some ways using ftp instead of the Web is easier, as you don't have to deal with all the slow graphics...you just pick a file and down it comes to your computer. The drawback to ftp sites, though, is that there is no easy way to know what you're looking at. All you see is a list of file names without any descriptions.

If you want to use ftp.iup.edu but don't want to use an ftp client the site is also available via the Web. You can browse to http://www.iup.edu/flight-sim/files/uploads and get right to the flight sim files. However, you won't get any more help than you would if using ftp directly. Again all you'll see is a list of file names and directories.


on Sep 24, 1996:
bmg10.zip *** (5k) Robert Schiele (Freeware)
FS5.1 scenery for Bloomington-Monroe County Indiana Airport (BMG).
exiii-1.txt *** (8k)
exiii-1.zip *** (57k) Arnold Fuller (Feedbackware)
Spad S.XIII C.I. S.15135 - WWI plane .
Requires Flight Shop.
ll21.txt *** (1k)
ll21.zip *** (18k) Dan Barnes (Freeware)
FS5.1 scenery 0c0 (Ducy), 0c0 (Cushing), and 3ck (Lake in the Hills)

Mike Marando is one person who has tried to improve on this. He runs a Web site called "Mike Marando's Flight-Sim Uploads Page" located at http://www.iup.edu/flight-sim/marando/ which has one simple purpose: to make the ftp.iup.edu new uploads more accessible. Mike breaks down the files by date, so it's easy to see what the newest additions are. He also adds a brief description to each file so you can easily tell what exactly you're looking at. He even flags bad files so you won't waste your time downloading them. Mike's efforts make ftp.iup.edu a lot more accessible, at least for the newest files coming in to the site. For older files, you might want to download the index file (a plain text file) and browse it offline.

Some Web sites cater to specific interests. By doing this the file collection remains manageable and greater effort can be put into describing each individual offering.

"Flight Shop Aerodrome" is one such site (http://www.phoenix.net/~tigone/aerodrme/aerodrme.html). It specializes in World War I aircraft and has starting branching out into other historic aircraft, such as the P-51D which was the newest addition on the day I reviewed the site. If WWI craft are what you want this site is great. Each file has a nice description and an in flight screen capture so even if you don't know your historic aircraft you'll know exactly what you're downloading.

If classic airliners are your idea of great flying, then a visit to "Tom Gibson's Classic Airliners" site at http://members.aol.com/TGFltsim/ will answer your needs and then some. Tom is obviously a fan of older commercial craft and in fact has designed many Flight Shop versions of them himself. His site is a collection of his planes and many others so if a classic airliner has been made with Flight Shop, you can find it in his collection.

One drawback is that not all files are actually located at the site. Many are just links to other Web and ftp sites. This is common on many Web sites, but can sometimes cause problems when the site with the listings is up but the site with the actual files cannot be accessed.

The listings are nicely done, with each plane getting a thorough write-up and at least one screen shot. In addition to the planes other files can be downloaded such as DC-6 flying instructions, sound files, panels and even some scenery. There's also a set of instructions for installing the planes so the newcomer won't be left in the dark.

CONCLUSION

Whether visiting an all-in-one site like flightsim.com, microwings.com, ftp.iup.edu, or a specialized site like the others mentioned this month there are plenty of flight sim files waiting for you to download them from the Internet.

About the author - Nels Anderson has over ten years experience in PC based communications. He runs his own system, Xevious BBS in Framingham, Mass. and maintains a Web site devoted to aviation and simulators. Nels also holds a Private Pilot's license. He can be reached on CompuServe at ID 71020,2613. [MW✈]

THE PILOT SHOP

Hot Download Files For Flight Sims

(pictures on next page)

A note about location of files - The locations listed in this column indicate a confirmed source, but they may usually be found at other web sites or on-line services such as CompuServe, MSN, or AOL.

FSCONV.EXE (Bytes: 478kb)

Author: Microsoft
Location: http://microwings.com/ - Download Files - Adv or Aircraft

This program installs a converter that allows you to convert Flight Shop (FSFS) aircraft *and* adventures for use with Flight Simulator for Windows95. Now you can use the best selling add-on for FS5, with FS95.

PA_10.ZIP (Bytes: 280kb)

Authors: Justin Tyme and others.
Location: http://wings.ark.com/ - fs5 page, Scenery button

Justin Tyme (yes, that's his real name!) has achieved an excellent balance between visual details and computer performance with his new Commonwealth of Pennsylvania scenery. All major rivers, roads and terrain features are represented and airports have appropriate taxiways and buildings. Especially noteworthy are the Pine Creek Gorge area (shown) and the cities of Pittsburgh and Philadelphia. The latter was adjusted to work with Justin's scenery by authors Bill Roccia, David Jarinko, Marty Boxman, and Joann Sutton and is included in the package.

C46BNF.ZIP (Bytes: 140kb)

Authors: Dave McQueen and Matt Standish
Location: http://members.aol.com/TGFltsim/

This beautiful Curtiss C-46 Commando started life as a Flight Simulator 4 aircraft and was brought to FS5 via Flight Shop by the original author, Matt Standish. It was reworked and then repainted in Braniff colors by Dave McQueen. This aircraft is also available in the markings of Flying Tiger Line, Pan American, and Slick Airways.

FS5FCT20.ZIP (Bytes: 71kb)

Author: Konstantin Kukushkin
Location: http:wings.ark.com/ - fs5 page, Scenery Design button

If you were ever curious about the inner workings of Flight Simulator 5, then a read-through of this collection of documents should provide satisfaction. Konstantin Kukushkin has compiled detailed information that should be interesting to both casual users and scenery designers alike. In it, he addresses subjects such as how the scenery manager works, why you sometimes see runways floating above the ground, and even details of scenery design techniques for the experts. Part FAQ (Frequently Asked Questions) file, part tutorial, every Flight Simulator 5 user can learn something from this file.

FS767.ZIP (Bytes: 17kb)

Authors: James Knapton, Scott Davis and David Lewis.
Location: http://wings.ark.com/ - fs5 page, Non-FSFS Acft button

It's been a while since we've seen a new aircraft model that doesn't require Flight Shop, but it was Flight Shop itself that made this one possible. Starting with James Knapton's 767-300 .afx file and British Airways textures by Scott Davis, David Lewis has managed to create a completely new B767 airliner for FS5. The visual model is somewhat simplified from the original 767 model, (it's missing the flap and spoiler parts) but it is certainly presentable and the flight model is not compromised. On the other hand, it does have animated landing gear and working landing lights. Also, remember to turn off 'own aircraft shadows' in Display Preferences, or the aircraft will disappear when near the ground! Watch for repaints of this one and for new original designs, too.

NV51.ZIP (Bytes: 559kb)

Author: Michael Raspino
Location: http://www.sstar.com/mike9r9/avshp.htm

Ver 5 of Michael Raspino's popular New Orleans scenery features numerous improvements and additions. For example, anticipating the completion of the new runway at MSY, Michael has already put it in! For those who are not already familiar with this scenery, I should mention that the airports include refueling areas, hangars, taxiways and functioning wind socks. And a tour of the area reveals roads, bridges, construction cranes, hotels and public buildings, and even ships on the river. I was particularly impressed with his realistic but judicious placement of trees around the airport which give an excellent impression of small patches of forest. Michael has used the Prefab utility to create many of the custom scenery objects and has even converted his own Flight Shop Delta 757 into a static object. He's parked a couple of them realistically on the ramp so you won't feel lonely on arrival.

CL44D4FT.ZIP (Bytes: 88kb)

Author: George A. Vega
Location http://wings.ark.com/ - fs5 page, FSFS Aircraft button

Following on the heels of his magnificent Bristol Britannia series comes George Vega's latest creation, the Canadair CL-44, itself a development of the Britannia in real life. This example is painted in the distinctive markings of the famous Flying Tiger Line and there is one in Loftleidir (Air Iceland) livery in a separate file, CL44D4LF.ZIP. These aircraft were known for their range, speed, quietness and fuel economy. They represented the pinnacle of large turbo-prop transport aircraft design at the dawn of the age of commercial jet aviation. Don't miss the opportunity to experience this unique aircraft.

F14_V102.ZIP (Bytes: 238kb)

Author: Kazuo Saido
Location http://wings.ark.com/ - fs5 page, FSFS Aircraft button

Okay, I know this is a non-combat sim, but I couldn't resist. This file contains three different F-14 Tomcats for FS5/FSFS by Kazuo Saido plus an instrument panel and a very realistic sound file. The aircraft include an F-14A+ of VF-103 "The Jolly Rogers" (pictured) , a VF-211 "Checkmates" F-14A+, and an F-14D of VF-31 "Tomcatters". I couldn't get the panel to work on my system (perhaps a conflict with my panel management program), but the aircraft are beautiful and the sound file is perfect. Special features include automatic wing sweep at high speed and illuminated afterburners at high power settings. You can't land on the Carl Vinson in the MS Hawaii scenery due to the lack of a functioning arrestor hook, but now you have the perfect aircraft for practice approaches, "bolters" and "wave-offs".

MAURITIU.ZIP (Bytes: 869kb)

Author: J.C. Embry
Location http://wings.ark.com/ - fs5 page, Scenery button

Fans of Juan Cabeza's Balearic Islands scenery will want to visit J.C. Embry's new scenery of Mauritius Island in the Indian Ocean to see how far the state-of-the-art in scenery design has advanced, with an emphasis on "art". Flying over this scenery is like entering a beautiful oil painting. From the outlying reefs to the wooded highlands, in no other FS5 scenery have I experienced the sensation of flight in 3-D space to this degree. Checking the hard drive it quickly becomes evident why this style of scenery is normally limited to islands: this relatively small area uses 55 individual texture files and takes up nearly 3.5 Mb when installed!

About the author - Eric Mitchell is a web site designer, aviation artist, and former Maritime Patrol Navigator who enjoys flying Flight Simulator 5 as well as designing Flight Shop aircraft and scenery. He maintains the wings.ark.com web site and introduces some of the newest and most interesting files in this column. Eric can be reached via e-mail at mitchell@mars.ark.com.

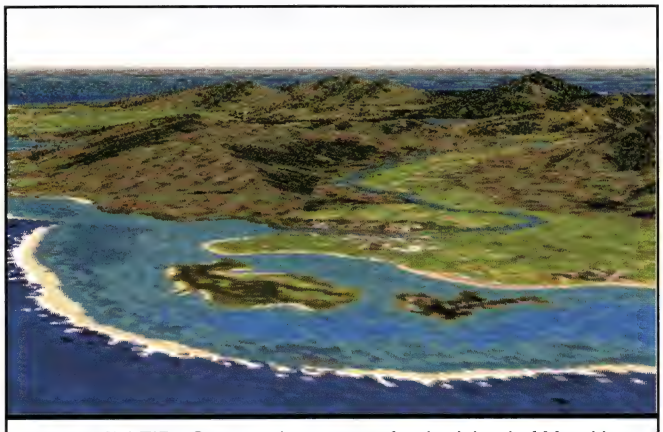
If you do not have a modem... MW can provide you with whatever files you are wanting (provided we have the author's permission to distribute their files). Contact us via tel., fax, or mail for file availability, ordering information, etc. For this service, we charge $5 per disk (USA) or $8 per disk (Int'l). Note that this is a per disk charge, not a per file charge. A disk is a 3.5", 1.44 MB floppy. If more than one file will fit on one disk, then you only pay for one disk. *[MW✈]*

FSCONV.EXE - The bridge for aircraft & adventures from FS5 to FS95!

CE46BNF.ZIP - Braniff Curtiss Commando hauling cargo.

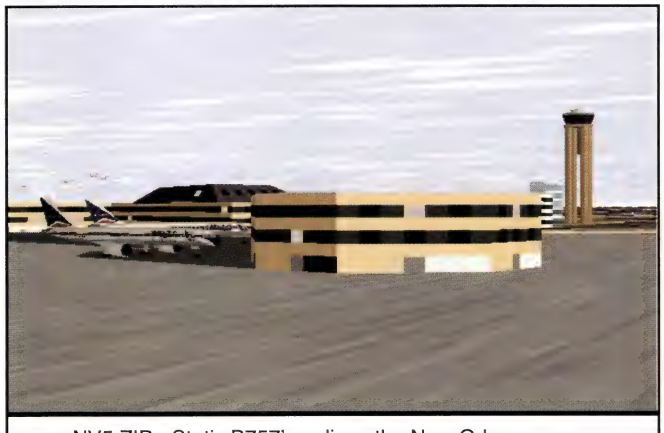
CL44D4FT.ZIP - George Vega's CL-44 swing-tail freighter at New Orleans.

F14_V102.ZIP - Is it really FS5, or one of those "other" simulations?

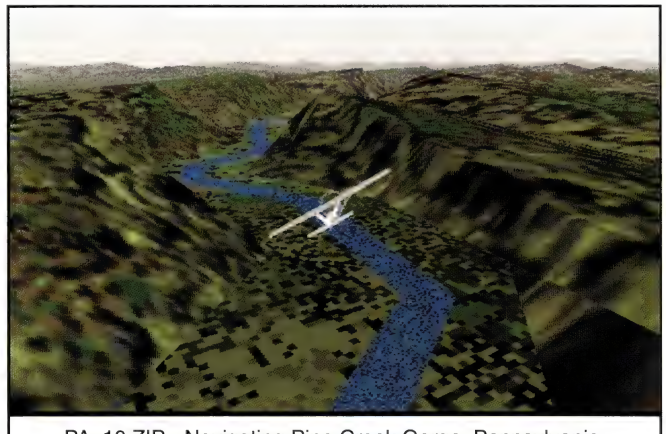


MAURITIU.ZIP - Spectacular scenery for the Island of Mauritius.

FS767.ZIP - A new breakthrough in FS5 aircraft.



NV5.ZIP - Static B757's enliven the New Orleans ramp.



PA_10.ZIP - Navigating Pine Creek Gorge, Pennsylvania.

Virtual Round Robins

The term Round Robin is used by many aircrews to describe a flight route that completes a circuit (ends where it begins). Normally, a practice approach is flown at each airfield on the route.

by Al Pelletier

This RR takes place in Germany and was flown with Microsoft FS5 & the Europe1 scenery. But it can be flown with any Flight Sim that has the required airports and navaids. The RR's use "real" world Navigation. The highlight of this RR is the fine scenery offered in Europe1. There are also a couple of challenging NDB approaches.

Scenery

Microsoft Default FS5.1 and EUROPE1 by BAO/Apollo. It could also be flown with the EURO.BGL or the EUR.ISS. Both are available at the wings.ark.com site and at ftp.iup.edu. If you did previous RR's, skip the next paragraph, jump right in, and have fun.

For those who are new to this, Round Robins are published with the intent of having FlightSimmers fly, look at the scenery, refresh our Geography, practice our cross country navigation, do some approaches at different airports all over the world, and have some FUN.

In the messages, you will be getting info like: airport departure and runway number, VOR's and ADF's en route, two or three middle airport destinations for VFR or Instrument (INST) approach, and back to your point of departure (round robin) for an INST or VFR approach, along with ILS and LOM freqs, minimums, procedures etc.

May I also suggest, that you READ the route a couple of times before starting out, so that you'll have the flight plan fairly clear in your mind.

DUSSELDORF (EDDL) ➢
SAARBRUCKEN (EDRS) ➢
STUTTGART (EDDS) ➢
RAMSTEIN (EDAR) ➢
DUSSELDORF

Waypoint	ID Freq	Elev	Position	To Next Waypoint Course	 Distance	 Comments
DUSSELDORF VOR-DME	DUS 115.15	118	N 51° 17.1' E 6° 45.3'	185T 187M	26.7 nm	
NORVENICH VORTAC	NOR 116.20	325	N 50° 50.5' E 6° 41.7'	170T 172M	98.6 nm 26.7 nm	
SAARBRUCKEN NDB	SBN 343	1056	N 49° 13.2' E 7° 07.0'	112T 114M	91.9 nm 125.3 nm	
TANGO NDB	TGO 422	1214	N 48° 37.2' E 9° 15.6'	334T 335M	47.8 nm 217.1 nm	
NECKAR NDB	NKR 292	0	N 49° 20.2' E 8° 44.0'	278T 279M	45.0 nm 264.9 nm	
RAMSTEIN VORTAC	RMS 113.40	781	N 49° 26.1' E 7° 35.5'	341T 342M	26.4 nm 309.9 nm	
KIRN VORTAC	KIR 117.50	1414	N 49° 51.1' E 7° 22.2'	355T 357M	88.9 nm 336.3 nm	
BARMEN VORTAC	BAM 113.60	879	N 51° 19.7' E 7° 10.7'	261T 263M	16.1 nm 425.2 nm	
DUSSELDORF VOR-DME	DUS 115.15	118	N 51° 17.1' E 6° 45.3'		441.3 nm	

1:720000 | 51° 41' 25.01" N | 6° 48' 57.15" E

Figure RR.1 - Our Flight Plan for this round robin, using NavAid v1.2.

First Leg

Dusseldorf ➢ Saarbrucken
distance approx. 124 NM

- Clock 2000
- Select Dusseldorf RWY 23L under airports.
- Dial in the NORVENICH (NOR) VOR 116.2.
- T/O, climb Runway (RWY) Heading (HDG) to 2000, then turn left and track the NOV VOR, and continue climb to 23000.
- On top NOV, turn left HDG 170. Dial in the Saarbrucken (SBN) NDB 343. It should kick in about 35 to 40 NM out of the NOV VOR. Home to it. Also, dial in the Saarbrucken (SAA) VOR 113.85. It only comes in at 20 NM out in the, Europe1 scenery.
- 20 NM out of the SAA, begin descent to 5000. Dial in the ENSHEIM (SR) NDB/LOM freq 360. and home to it, in preparation for an NDB/DME approach to RWY 27 (actual HDG 270, elev. 1057).
- Over the NDB, turn left HDG 090 and descend to 3700. At 7 NM out on the VOR, turn left and home the NDB (approx. HDG 270).
- Over-fly the NDB on a HDG of 270 and at 3200ft alt.
- After on top, begin descent and maintain HDG 270. At 3 NM out of the VOR, you should be at 1960ft alt.
- You are cleared for a full stop RWY 27, check gear.

Figure RR.3 - Cathay Pacific B747 over Dusseldorf, Germany.

Figure RR.4 - Air Canada 727 takes off from Ramstein AB, Germany.

- LAND Saarbrucken.

2nd Leg

SAARBRUCKEN ➤ STUTTGART
distance approx. 90 NM.

- Clock 2100.
- Dial in the Tango (TGO) VOR 112.5 and the Stuttgart West (SY) NDB freq 384 on the ADF.
- Taxi to and T/O RWY 09, Right climbing to 17000, HDG 114.
- Track the TGO VOR.
- 30 NM out of TGO, begin descent to 7000. At 14 NM out of TGO, turn right HDG 150, in preparation for an NDB/DME to RWY 08.(actual HDG 075, elevation 1300).
- Dial in the Stuttgart TACAN Channel 95 freq 114.80. This will give you the DME part of this approach. NOTE: the TACAN is located at the other end of RWY 08. So when it reads 5 NM, you are actually 3.9 NM from RWY08.
- When your ADF needle is pointing to 095, begin a left turn, and home the NDB. Over-fly the NDB on a HDG of 075 and at 3500 alt. At 4.5 NM DME, you should be at 2400 ft alt.
- You are cleared for a full stop to RWY 08. Check gear.
- LAND Stuttgart. RON (Remain Over Night)

3rd Leg

Stuttgart ➤ Ramstein
distance approx. 80 NM.

- Clock 0800
- Dial in the Ramstein (RMS) VORTAC 113.40.
- T/O RWY 08, left climbing to 16000, HDG 300.
- Track the RMS Vortac. Enroute, dial in the LOC (I-RMS) 110.5. and the Neckar (NKR) NDB freq 292, in preparation for an ILS to RWY 27 (actual HDG 267, elev. 782.)
- 55 NM out of the RMS VORTAC, turn right and home the NKR NDB. Begin descent to 7000. (It is approx. 30 NM to the NDB).
- Over the NKR NDB, turn left HDG 285, and descend to 4500. (you get your DME off the VORTAC).(It might take a while for reception of the LOC with Europe1 scenery, but it does come in).
- 5 NM back, you are cleared for a full stop RWY 27, check gear.
- LAND Ramstein AB.

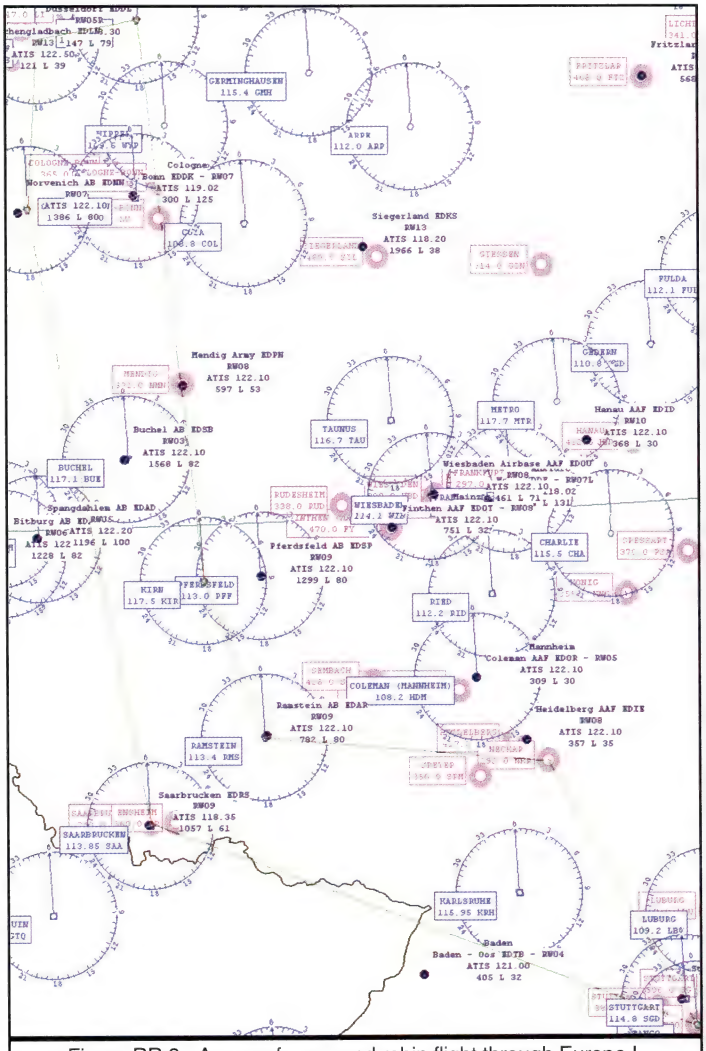
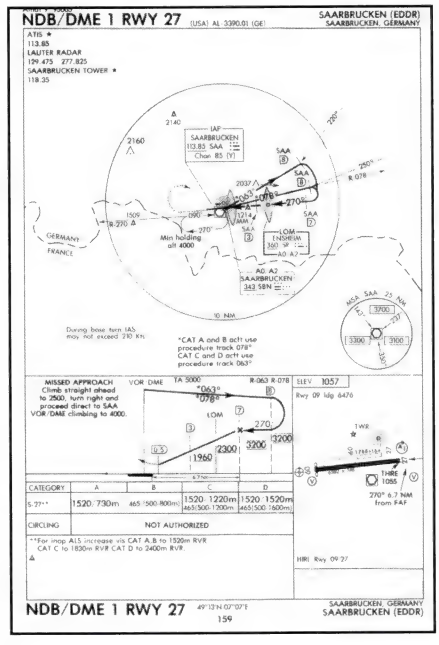


Figure RR.2 - A map of our round robin flight through Europe I.



Edit WEATHER

Clouds
type=user defined
base=1500
tops=11000
coverage=overcast
turb=2

Wind
surface type=steady
depth=5000
speed=15
dir=270

Visibility
visibility=2 NM

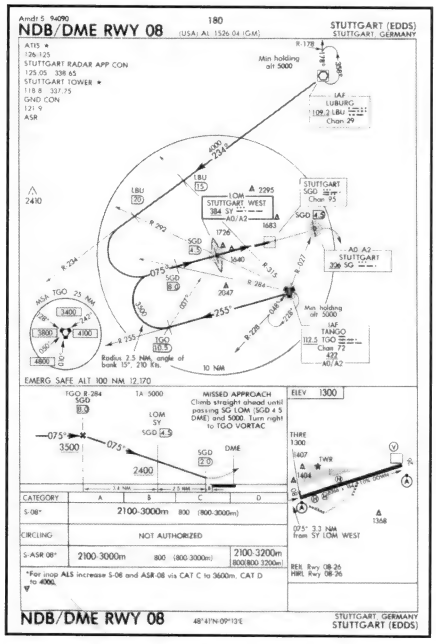
4th Leg

Ramstein ➤ Dusseldorf
distance approx. 115 NM

- Dial in the Barmen (BAM) VOR 113.6 and the Kirn (KIR) VOR 117.5.
- Taxi to and T/O RWY 27, right climbing to 22000, HDG 360.
- Track the KIR VOR to on top.
- On top KIR, turn HDG 350. The BAM VOR should kick in 15 NM out of KIR.
- Track the BAM to on top.
- 30 NM out of the BAM, begin descent to 4500ft.
- Dial in the LOC (I-DSW) 109.9 in preparation for an ILS to RWY 23L (actual HDG 235, elev. 147).
- Over BAM, turn left HDG 300, and maintain 4500. You'll intercept the LOC approx. 7 NM passed the BAM VOR. (Don't forget the cross-wind, while flying the ILS course!!)
- At the LOM, you are 5 NM from RWY 23L.
- You are cleared for a full stop to RWY 23L. Check gear.
- LAND Dusseldorf.
- WELCOME HOME

GEOGRAPHY

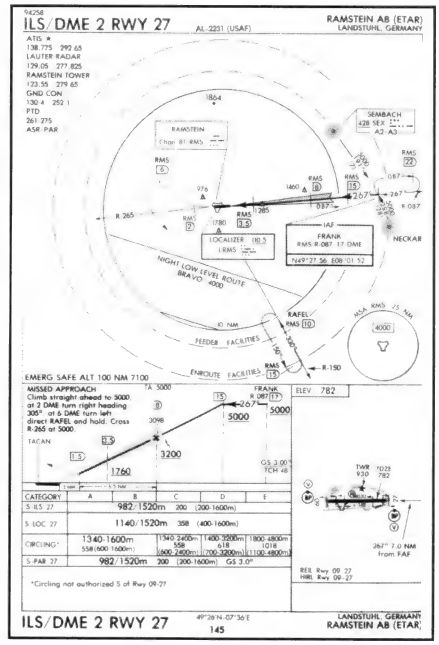
Dusseldorf, a city in western Germany, is the capital of the state of North Rhine-Westphalia. Heavily damaged in World War II, it is now characterized by modern architecture. The population is 560,600 (1987 est.). Situated on the east bank of the Rhine River 34 km (21 mi.) northwest of Cologne, Dusseldorf possesses river ports and extremely active air and rail terminals. Stuttgart, the capital city of the state of Baden-Wurttemberg in southwest Germany, lies in the Neckar River valley, about 80 km (50 mi.) east of the French border. The city covers an area of 223 sq. km (86 sq. mi.) and has a population of 565,200.



Stuttgart is also an important railroad junction linking the Rhine Valley and southern Germany. Stuttgart is especially well known as a publishing center. The city hosts frequent industrial and book fairs. If you have the Europe1 scenery, do a VFR flight down the Rhine. This scenery is accurate enough to do a VFR flight up and down the river.

Credits

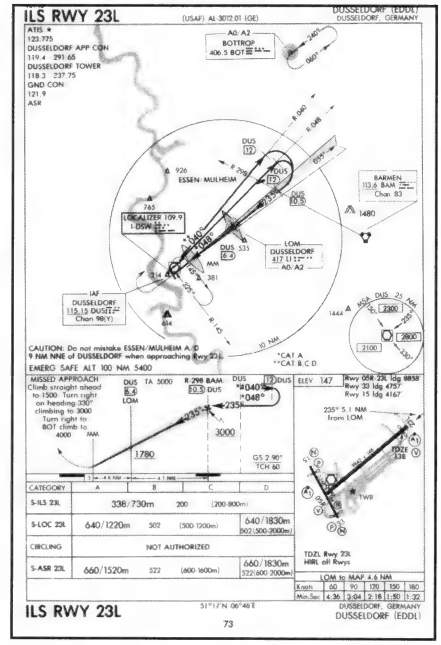
1 - Thank you to Chris Squire for test flying



the route. Thanks also to Peter Jacobson for the program "NAVAID12" which I used for Flight Plans, and maps.

2 - I flew a B747 on this trip, but any other A/C will do.

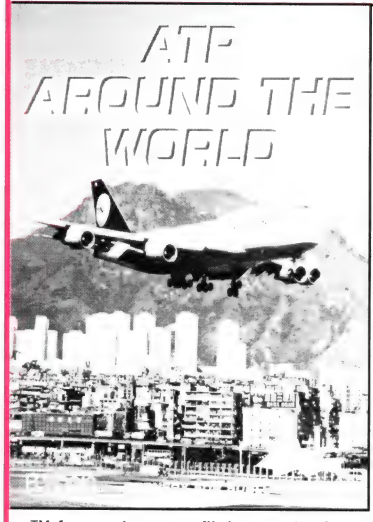
3 - For the experienced flyers, please be patient through all of the explanations, directions and extras. I direct this at newcomers to the flying world. I must stick to plain language.



Have Fun and watch for upcoming RR's in the regions of Canada and the Caribbean

About the author - Al Pelletier served in the RCAF for 25 years, as aircrew on Maritime Patrol airplanes. Al has been flying Flight Sims since the mid 80's with MSFS V2.0 and is a member of the Comox Valley Stopover Flyers. Al can be reached via Internet email at apeltier@mars.ark.com. [MW✈]

NEW AMAZING PRODUCTS OF FLYLOGIC



Flyogic presents:
The new scenery concept for subLOGIC's ATP. Compatible with 3DAGS , LAGO's Airline Simulator, FLYLOGIC's Boeing 737!
Fly the worlds most interesting route in a real Airline environement. Visit the most beautiful cities of Asia, Australia and South America. Highlights are Hong Kong, Sydney, Rio de Janeiro and many more. 3DAGS and ATC are fully supported.
- 80 Destinations and many diversion airfields.
- Full FMS/SMS support
- Flight Briefing Sheet ™ for each careerflight to print from CD, includes full route description, weather briefing, fuel calculation, e.t.c.
- Performance Sheets and Trip Planning Sheets make flight planning a joy
- ATC Support for 50 Careerflights
- New clouds and visual effects
- Completely revised Night Effects.
- **English Manual**

Includes the famous ATP UTILITIES 4.1 Shareware by Simon Hradecky.

Flylogic GREECE for FS5/ FS95

Take a holliday of a lifetime in beautiful Greece! Fly around the Acropolis or the ruins of Delphi or land your 737 at one of the Ionic or Aegaic islands like Crete, Rhodes, Lesvos, Skiathos, Corfu and many more. Can you manage to fly in and out of Mikonos airfield with an airliner as do the European charter companies the year round? Or do you prefer to stop over in Thessaloniki on the Chalchidiki peninsula for some Greek wine or an Uzo or two? Enjoy the superbly modelled scenery with its new textures and beautiful sights!
Flylogic's Greece is 100% FS95 compatible.

mailsoft
Witzbergstr 5.g, CH 8330 Pfaeffikon ZH , Switzerland
Tel: +41/1/950 56 11 FAX: +41/1/950 50 58
CIS: 100617,3124 E-MAIL: 100617,3124 @compuserve.com
Check our Web Site at http://www/world.ch/mailsoft

Flight Simulator '95 - It's a pretty good program

by Bruce Artwick, Chairman, BAO Ltd.

Having been heavily involved as a consultant to Microsoft in the development of Flight Simulator for Windows 95 (also known as FS6, U-Haul, Fast-Track, and Phoenix at various stages in development), it may sound a bit biased for me to be bragging about this program, but in this case, I think it's justified. I'm not always excited about new releases, and if I'm not, I take the "if you can't say something nice, don't say anything at all" approach.

The main "feature" of FS6 is of course that it is Windows 95 compatible. One is tempted to say "so what", especially if you're not a Windows 95 fan. The cynical even may say this is yet another attempt to drag everyone into Microsoft's operating system world. I wouldn't be completely honest if I said that thoughts like this haven't crossed my mind too, but when you look at all the advantages brought to this program by running under this platform, it's really quite impressive.

FS6 isn't just "runnable under Windows 95" as FS5.1 was. It's not simply a warmed-over DOS product running with a DOS extender as most entertainment programs are these days. This is a Windows 95 benchmark application. It is a 32-bit flat model implementation that in every way, from C++ Microsoft Foundation Class dialogs to virtual memory utilization, complies with the Windows 95 operating system. It runs under Windows 95 or NT.

From a practical standpoint, this means that no longer are there any questions and problems with XMS, EMS, and Conventional memory requirements, graphics board problems, sound card problems, or interface device problems. Not only is installation straight forward, but things run in an optimum configuration - 32-bit flat model, with no memory limit at about 600k. One of the biggest problems with FS5.1 was that most people have their machines setup with the "NOEMS" line in their config.sys memory manager command. These people run XMS only and fly at only about 50% the frame rate as people running EMS. As with most DOS and Windows 3 apps, once most users get it running at all, they say "it works - now I won't touch it because I'll probably break it". They never get the performance increases possible when you tweak your memory configuration, as do many of you flight sim power users.

Other advantages? You can run in any display resolution and expand the visual windows to any size you want. You can go to a low res mode (640 x 480 x 256-color is low res these days - we've sure come a long way) and make FS look like FS5.1 and take up the whole screen like most PC games do, and loose the Windows 95 look entirely. You can multitask and let your plane fly long cross countries on autopilot while you do other work or use other flight-related software.

We knew from the start that we would have these advantages if we brought FS5.1's 750,000 lines of code and 650 Mb of source data over to flat model, C, and C++, but our biggest fear was that this program would come across as being "just like FS5.1, but slower". There were many naysayers, but from the start, I felt it was quite possible to come close to the FS5.1 frame rates. One big difference in FS6 is that rather than generating an image directly in the graphics card's memory (screen memory), we must generate it in system memory, then call Windows 95 system routines to copy it to screen memory. Everyone thought this extra copy step would take so long that our frame rates would go down the tubes. Windows 3 memory-to-screen blits (copies) are not known to be the fastest in the world. Back in the summer of '95, prior to Win 95'introduction, my argument was that due to the emphasis on multimedia software these days, the Windows 95 team would probably do a much better job of making these blits very fast. Another reason I was optimistic was that we had done this successfully before on Macintosh version 4.0. Apple's blits have always been lightning quick and hopefully Win 95's would be too.

Three things saved us. The Win 95 blits are surprisingly quick. We also make up much of the time we lose in the blit by generating into the much faster system memory. System memory has no wait states as screen memory does. In generating an image, much screen overwriting occurs as objects in front of other objects are drawn. In these cases, we avoid all the wait states of writing to screen memory over and over again. In FS5.1 we optimized for wait states by generating scan lines in memory buffers, then copying them to screen memory when all processing was done. In FS6 we threw out all these in-between steps and generate right to system memory, thus saving a lot of time. FS5.1's 16-bit 2D drivers must also do all kinds of page flipping and conditional testing to display large screens because even a 640 x 400 display has 256,000 pixels - much more than 16-bit's 65,535 maximum number. FS6's 32-bit 2D drivers avoid all this page flipping.

The third performance boost came from an interesting source. Usually, after working a whole year on a project, most of the engineers are burned out. We're usually under severe time pressure to just ship the product. If it works it goes out the door. Optimizations that the engineers have planned for "later on" never happen. At the end of this project, something interesting happened.

A new engineer with some optimizing expertise was put on the project in the last month. His fresh view of the graphics system and knowledge of optimization got all us burned out engineers energized again and we addressed many performance issues that in most projects would have gone by the wayside.

Did we come close to FS5.1 display rates? No. We surpassed them by a wide margin. Everything from knocking a few clock cycles off a critical loop here and there to Pentium pipeline stall avoidance produce frame rates nearly 50% higher than FS5.1 with EMS. Most users (those who run XMS memory only) will see 100% frame rate improvements.

Beyond the performance issues, the increase in content due to this being a CD-ROM only program that 60 plus people worked on is incredible. Not only is all the old scenery redone but a ton of new scenery is added.

When you work on a huge project like this, you tend to get into your own little corner and spend most of your time there. For me, it's the 3D and 2D graphics display systems. You tend to loose sight of what's going on in the whole project. The first time I really saw the whole product demonstrated was at Oshkosh '96 at Microsoft's booth. The interactive flight lessons, the 737, and Patty Wagstaff's Extra 300 doing amazing aerobatics (a nice little counterpunch to Flight Unlimited) are quite impressive and the multimedia-type presentations and videos are second to none.

I felt very good leaving Oshkosh that day. FS6 turned out to be a much finer program than I ever thought it would be - and I'm not the only one on the team who thinks so. Nearly everyone does. *[MW✈]*

By Michael J. Fisher

I'd like to dedicate this column to the many FS5 "sim shutterbugs" who bombarded me with e-mail after they read the MicroWINGS review of TekMate's Virtual Skunk Aerobrokers aircraft collections in V4N1. Thank you *very* much for your compliments regarding the composite flight photographs I prepared to accompany the review. Yes, necessity is indeed the mother of invention — I originally developed the technique to let our members see more pictures of TekMate aircraft than space would have otherwise permitted — but the many requests I have since received for information about how to create these photographs convinced me to devote a few more pages to the subject. In this column, I will walk you step by step through the creation of the composite photo which appears on the cover of this issue — and attempt to answer the question: "Michael... how the hell'd ya do that?"

A composite FS5 flight photo depicts several aircraft — four, five, six, or more — in a single photo while preserving each airplane's position, perspective, light-sourcing, and shadows (See Figure CP.1). Creating such images presents challenges that readily appeal to the PC graphics enthusiast because it's not possible to cause more than one textured airplane to appear in any FS5 scenery for capturing with FS5's "Flight Photograph" feature. Instead, each airplane you want to include in a composite image must be photographed individually, and the separate images must later be combined into a single photograph through the use of graphic editing software. We can divide the steps required to create a composite image into three broad categories: Planning, Shooting, and Assembly.

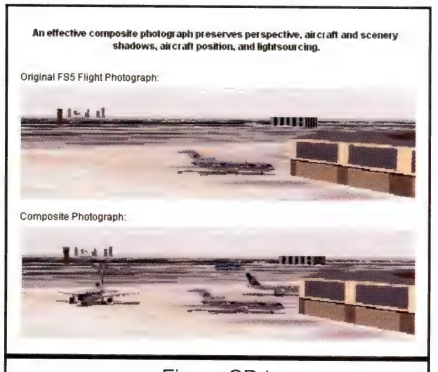

An effective composite photograph preserves perspective, aircraft and scenery shadows, aircraft position, and lightsourcing.
Original FS5 Flight Photograph:
Composite Photograph:

Figure CP.1

Planning

Since it is not possible to photograph more than one aircraft at a time in FS5, it is very important to carefully plan what you want your finished composite image to look like *before* you begin shooting any photos. During the planning stage, you'll want to consider what scenery you'll photograph the aircraft in, what aircraft you will use, where you'll set up FS5's "virtual camera" and in what direction you'll point it, where each airplane will appear in the assembled image, and what orientation each plane will have relative to the "camera." Of course, the usual time, date, and weather considerations which influence the visual impact of any flight photograph apply equally to composite images.

Composite Photo Limits
The blue line indicates the usable-space limits for a composite photo taken from this tower position and view direction. All aircraft to be photographed on the ground must be placed below and left of the line to prevent perspective errors.
The blue boxes hilight scenery landmarks that can be used as positioning aids.

Figure CP.2

The decisions you make now will greatly affect the quality of your photo, the number of planes you can include, and where you can position them. Due to poor initial planning (or, in my case, no planning at all), my first few composite images contained perspective and light-sourcing errors severe enough to completely ruin their visual effectiveness and realism. Fortunately, creating composite images is a skill that just about any FS5 flight photography enthusiast with a good creative eye and a healthy dose of patience can learn.

I recommend starting the planning process by thinking first about where you want your photo to take place, at what time of day you want the photo to occur, and what weather conditions

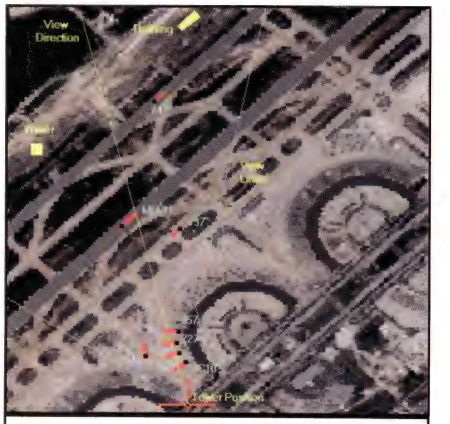


Figure CP.3

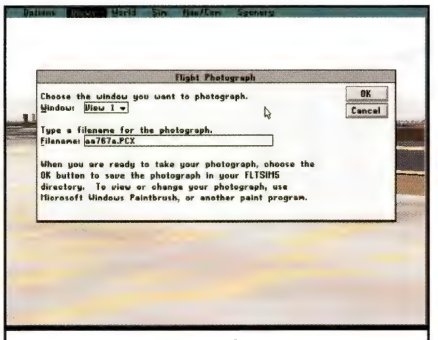

Flight Photograph
Choose the window you want to photograph.
Window: View 1
OK
Cancel
Type a filename for the photograph.
Filename: ss767a.PCX
When you are ready to take your photograph, choose the OK button to save the photograph in your FLTSIM5 directory. To view or change your photograph, use Microsoft Windows Paintbrush, or another paint program.

Figure CP.4

(especially haze) you will use. Start up FS5, set the time and weather, and then move an FS5 aircraft into to the scenery area you will use. Switch to a full-screen view (press the 'W' key to do this), and then go slew-happy! Move the airplane around every which way and explore the different photo possibilities the scenery might offer. When your mind's eye tells you you've found your simulated "Kodak Moment," set up your virtual tripod. Go to World... Set Exact Location and click the "Set Tower View from Aircraft Location" button. Slew your airplane back to ground level and switch off slew mode with the 'Y' key. Switch to tower view and save a situation.

Use of the tower as opposed to spot-plane view mode is especially important. The purpose of a composite photo is, of course, to realistically depict a single scene – such as a busy afternoon at DFW — from the perspective of a single, stationary observer. Preserving the relative sizes of each photographed airplane and accurate placement of aircraft shadows and shading is essential to the generation of a realistic finished image. FS5's tower view mode remains fixed relative to the ground, and FS5's graphics engine will automatically handle relative aircraft size, shadowing, and light-sourcing as a plane is moved

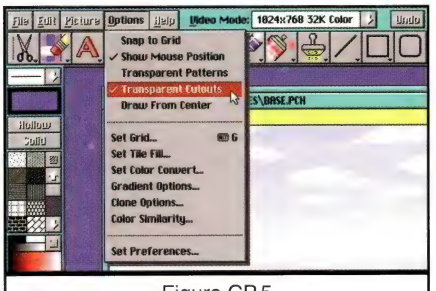


Figure CP.5

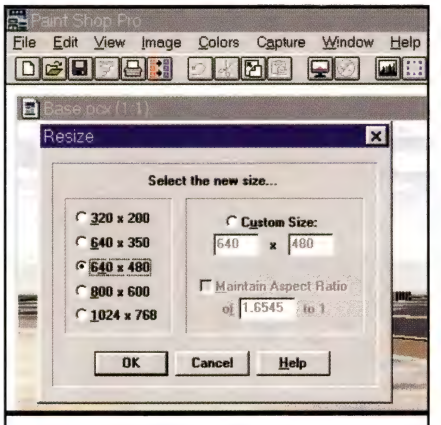


Figure CP.6

around the fixed tower. Within certain limits that I'll discuss below, each airplane in a series of photos taken from the same tower location will have near-perfect perspective, light-sourcing, and shadowing accuracy relative to each other — making them great candidates for editing into composite images that yield stunning visual results.

Now that you've got your location pinned down, consider next what aircraft you want to place in the image and where you'd like each one to appear. Especially when creating a photo showing airport ground activity, pay careful attention to the limits within which aircraft can safely be placed. These limits are established by the tower location and view direction you've chosen (See Figure CP.2) — if you attempt to place an aircraft outside of this region, the resulting finished-photo perspective and light-sourcing for that aircraft will be incorrect. To help you plan your photo, you might want to shoot a map-view photo of the area and mark the tower location, view direction and limits, landmarks, and desired aircraft position and orientation (See Figure CP.3).

Common sense tells us that only large

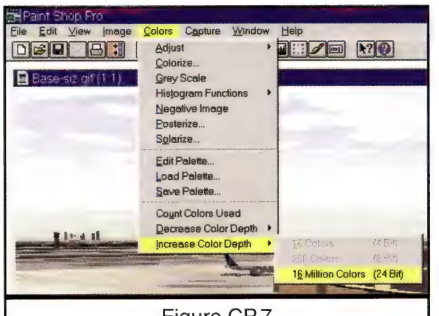


Figure CP.7

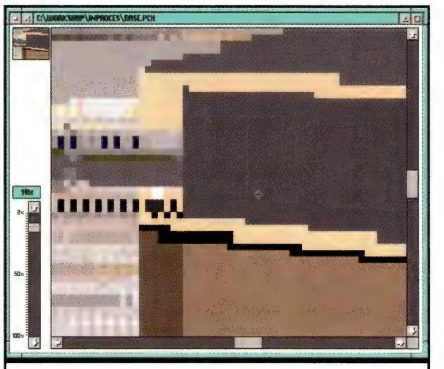


Figure CP.8

aircraft should be placed far away from the tower position; small aircraft may be practically invisible from long distances. You'll note that in the cover photo for this article, I placed a KLM 747-400 and an American MD-11 on the two distant DFW runways for precisely this reason.

Lastly, select one aircraft to use for your "base image" onto which all other aircraft images will be pasted. In doing so, you'll need to consider which individual aircraft photo is most likely to yield the finished photo limits you planned, and which aircraft must by necessity appear in front of other aircraft in the assembled photo. I recommend that you select the airplane that is both nearest to the midpoint of the planned photo and farthest away from the tower location. If you choose correctly, the scenery background in your base photo will closely follow the photo limits you planned, and you'll reduce the chances that during assembly you'll have to re-paste portions of your base photo aircraft over another plane that must appear behind it. In the cover photo for this article, I accordingly chose the Continental 757 as the aircraft for my base image.

Figure CP.9

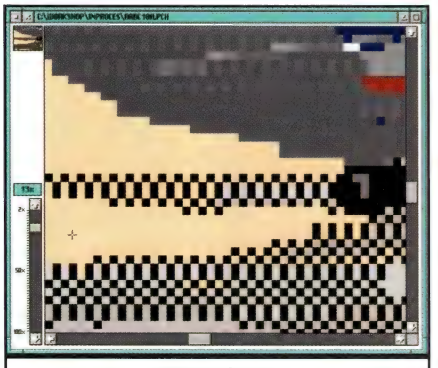


Figure CP.10

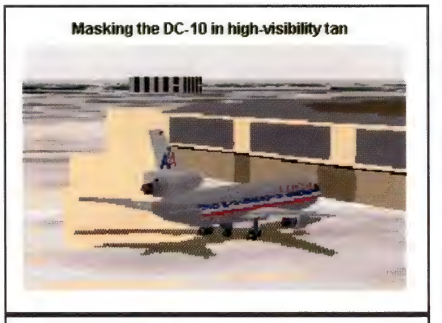


Figure CP.11

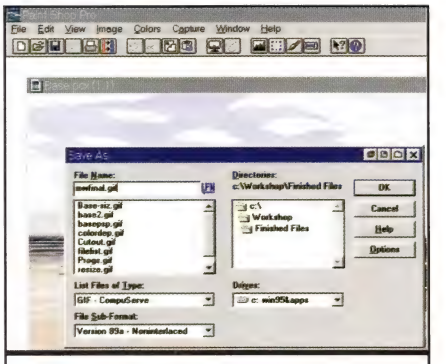


Figure CP.13

Shooting

For best results, use a full-screen tower view (press the W key) when shooting your photos. When you invoke the View...Flight Photograph function, be sure to set the "Window" option to "View 1" to capture only the view window and avoid capturing the mouse cursor (See Figure CP.4).

If you want to photograph an airplane in flight, simply fly it normally through the planned photo area, pause the sim, switch to your tower view, and start a replay with the Options....Instant Replay feature. Pause the sim when the plane is within the planned photo area, in a position that will add to the visual effectiveness of the finished photo. Then, shoot the photo. Photographing aircraft on the ground is much easier — simply slew the plane into a suitable position within the photo limits and shoot the photo. Be certain to switch off the slew mode (and pause the sim if necessary) before you shoot the photo — some flight shop aircraft will "hover" a foot or so above the ground while slew is active, and this can affect shadow accuracy.

An important note about time of day: during mid-daylight and mid-nighttime hours, light-sourcing and shadowing differences will usually be minimal from one minute to the next and it will often be unnecessary to worry about how much simulated time has elapsed since the time you took your first photo of the series. In contrast, light-sourcing and shadows will change dramatically from minute to minute during dawn and dusk periods. In order to insure a realistic composite image, before you take each photo you'll need to reset the sim clock to the exact hour and minute it was set to when you took your base photo.

I also recommend that you shoot each photo in the series two, even three times under separate filenames. Especially in highly-textured areas, FS5's Flight Photograph feature occasionally performs the screen dump before its graphics engine has finished drawing all the textures. Just as a professional photographer tries to take duplicate photos to hedge against a photo that doesn't develop properly, so should the sim photographer take a few extra shots just to be on the safe side.

When you have finished shooting the photos, you'll have a set of separate PCX photographs depicting each plane almost exactly as it will appear in the finished image.

Assembly

Photo assembly can be accomplished using a variety of different shareware and freeware graphics editors which are available from a variety of online sources, including CompuServe. I used two bitmap graphic editors — Paint Shop Pro 32 v.3.12 for Windows95 and NeoPaint 3.2, a sophisticated MS-DOS application which runs great from the Windows95 desktop. I found that one of NeoPaint's features, "transparent cutouts" (see Figure CP.5), was essential for the assembly of a composite photograph. When enabled in NeoPaint's "options" menu, "transparent cutouts" converts any plain white pixels of a copied image into a transparent mask. When you then paste the image into another one (in this case, into your base photo), the background of the pasted-to image will show through the mask. Through trial and error, I discovered that this feature will only work properly if the color palettes of the pasted-from and pasted-to images are identical.....which leads us to the first step of the assembly process:

1. Resizing the image and setting a standard color palette with Paint Shop Pro. The "raw footage" PCX photos which FS5's "flight photograph" feature generates are saved as 640x400, 256-color bitmap images. Each image is saved with its own "optimized palette" — a custom color palette that contains only the colors that are needed to properly display that particular image. Each optimized palette is created specifically for the image in which it is used and is different from the palette you'll find in just about any other FS5 flight photograph you shoot. The important thing to remember is that the

These thumbnails demonstrate the technique for preparing an aircraft image masked with a high-visibility color scheme for transparent copying into the base composite photo. From left: image after bit-level masking; high-visibility mask extension; fill barrier rectangle placement; white-masked image; image selected for transparent copying.

Figure CP.12

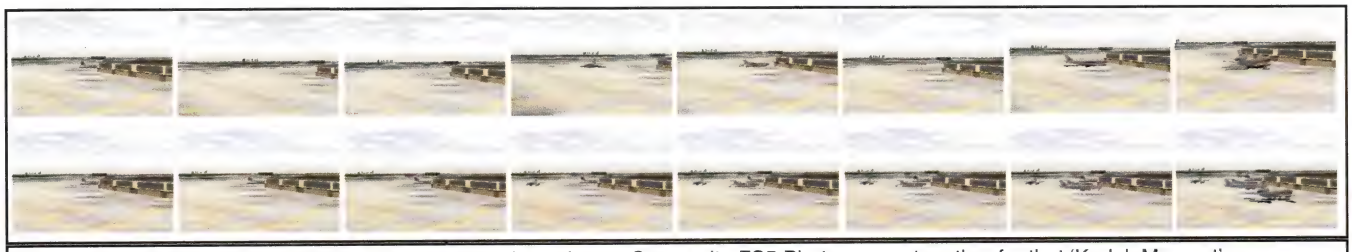


Figure CP.14 - Time lapse photography shows how a Composite FS5 Photo comes together for that 'Kodak Moment'.

differences between the palettes of any two flight photos are great enough to prevent NeoPaint's "transparent cutout" feature from working correctly when a part of one photo is pasted onto another photo. Moreover, FS5 flight photos are saved with an aspect ratio of 1.6, and will appear "squashed" when displayed with a 640x480, 800x600, or 1024x768 video driver (which all use an aspect ratio of 1.33). For these reasons, we'll use Paint Shop Pro to resize each flight photo in the series to a 1.33 aspect ratio (see Figure CP.6) and then apply a 24-bit uniform color palette to the image (see Figure CP.7). Adjusting the palette will cause some minor color shifts, but none significant enough to compromise the image quality. We'll then re-save the image as a PCX bitmap and switch to NeoPaint to assemble the finished photo.

2. Photo assembly with NeoPaint. Running NeoPaint in any of its 32K color video modes is sufficient for working with the 24-bit PCX files generated by Paint Shop Pro. We'll first load the photo we'll use as our base image and save it under its own filename — I commonly call it BASE.PCX. Next, we clean up the image — we'll manually edit out any "Paused," "Replay," "Video," coordinate, or other messages which FS5 may have been displaying at the time the photo was originally shot. Although I did not have to edit out any FS5 messages from the base photo for this article's cover image, a portion of the Continental 757 I photographed bled through the DFW terminal building, requiring some manual tweaking before I could proceed further (See Figure CP.8).

From here, we'll proceed in layers, pasting aircraft into the base image beginning with the plane that is the furthest distance from the tower "observer" and ending with the plane closest to the tower (in the cover photo, I began with the parked Continental 757 as the base image, and then proceeded as follows: KLM 747, American MD-11, Delta L-1011, American 727, Southwest 737, American 767, American DC-10). Figure CP.9 shows the process I used to bring each individual plane into the base image — I edited each source image manually to "mask out" all but the aircraft and its shadow, copied the plane with NeoPaint's "transparent cutouts" feature enabled, pasted the plane into the base image, and positioned it accurately within the image.

Masking the image for transparent copying is accomplished by converting every pixel in the background space surrounding the airplane and its shadow to plain white. NeoPaint, like most graphics editors, permits you to zoom in closely to edit the image pixel by pixel. Distinguishing the aircraft from the photo background can often involve difficult educated-guesswork, and as Figure CP.10 shows, bit-by-bit editing of each airplane's shadow to preserve the shadow and obliterate the background is delicate, tedious work. To make your task even more complicated, a plain white mask is by far not the easiest color to distinguish and work with, especially when editing light-colored aircraft. For this reason, I usually apply as a preliminary mask a bright, easily-distinguishable color that does not appear anyplace else in the aircraft — often either bright red, bright blue, bright green, or occasionally, tan (see Figure CP.11). After the entire aircraft has been masked, I draw a black rectangle around the portion of the image I plan to copy, and then use NeoPaint's global fill tool to convert the entire preliminary mask within the box to plain white with just a few mouse clicks. Finally, I enable "transparent cutouts" in NeoPaint's "options" menu and perform the copy-and-paste (see Figure CP.12).

After pasting the airplane into the base image, NeoPaint will allow you to drag it to its final resting place with the mouse. The airplane's perspective, location, and light-sourcing in the composite photo will be virtually identical to that of the original photo only where the plane is placed in the same relative position that it occupied in its original photo. I've found it very helpful to open up a second copy of the aircraft's original PCX photo and find landmarks — buildings, runway markings, and the like — to use in approximating the airplane's correct position in the finished photo. When no landmarks are readily available, you'll have to use your artistic talents to decide when the plane's perspective relative to other objects in the photo is "just about right." Simply click anyplace off the airplane's "drag rectangle" to set the plane in place. Repeat this mask-paste-position process for each airplane you photographed. Be sure to re-save the finished image after you bring in each plane, just in case you make a mistake and need to redo a paste.

If you want to reduce the file size of the finished image (which should currently be a 24-bit, 640x480 bitmap), simply load the composite image in Paint Shop Pro and convert it to a 256-color, optimized palette GIF (see Figure CP.13). When you're done, you'll have a single, shockingly-realistic, FS5 composite flight photograph. Until next time, good flying — and good shooting — to you!

About the author - Michael Fisher is CompuServe's FSFORUM Associate Sysop. He is a practicing attorney in Washington, D.C. and can be reached on CompuServe at ID 104047,2716. [MW✈]

Strapping you in the cockpit of desktop aviation!™

Flight Sim Central

Check out our full catalog ON-LINE at http://www.fscentral.com!

Order right from your computer – right now!

GENERAL AVIATION HANGAR

Approach Builder – SimuTech	$29.95
ATP Companion (3DAGS) – 3.5"	$44.95
Aircraft Collections Set 1–Airbus	$39.95
Aircraft Collections Set 2–Boeing	$39.95
Aircraft Collections Set 3–Great Airliners	$39.95
Aircraft Collections Set 4–BizJets	$39.95
Cessna Custom Kit – CD	$34.95
Final Approach – 3.5"	$34.95
Flight – CD or 3.5"	$29.95
Flight Adventures 1 – CD	$49.95
Flight Simulator for Win95 – CD	CALL
Flight Simulator 5.1 w/NY & Paris – CD	$59.95
Flight Sim Flight Shop – CD	$49.95
Flight Unlimited – CD	$34.95
Flight Unlimited Win95 – CD	$42.95
Flight Zone – Schiratti Commander	$19.95
FS Clouds Pro – 3.5"	$19.95
Navigator 6.0 – CD	$34.95
Pre-Flight – 3.5"	$34.95
PROPELLERhead Panels Cessna or Piper	$24.95
Rescue Air 911	$39.95
Scenery and Object Designer	$49.95
Tower – CD or 3.5"	$49.95
Tracon for Windows – 3.5"	$44.95
Visually Incredible Panels – FS Support	$22.95
Visually Incredible Panels – PC-7	$14.95

SCENERY HANGAR

ATP – Italy Scenery – 3.5"	$39.95
ATP – Swiss Scenery – 3.5"	$39.95
ATP – Germany Scenery	$39.95
ATP – Great Britain	CALL
Caribbean – 3.5"	$22.95
Europe Set 1 – 3.5"	$29.95
Europe Set 2 – CD	$39.95
Hawaii – CD	$22.95
Honk Kong – CD	$34.95
Italy – 3.5"	$24.95
Las Vegas – CD	$34.95
Madrid – CD	$34.95
Rio – CD	CALL
San Francisco – 3.5"	$14.95
Scenery Pack (HW, CB, JP) – CD	$32.95
United Kingdom – CD	CALL

HARDWARE HANGAR

F-16 Combatstick	$79.95
F-16 Fighterstick	CALL
F-16 Flightstick	$42.95
Flightstick Joystick	$39.95
Flightstick Pro Joystick	$59.95
Gamecard III Auto	$33.95
Gamecard Pro	CALL
Gravis Eliminator Game Card	$29.95
JC Designs PCMCIA Game Card II	$69.95
Pedals (CH)	$59.95
Pro Pedals (CH)	$84.95
Throttle (CH)	$79.95
Pro Throttle (CH)	$99.95
Virtual Pilot Yoke	$69.95
Virtual Pilot Pro Yoke	$84.95

Excellence delivered!

PROPELLERhead Design brings you these two new packages of add-on instrument panels for Microsoft Flight Simulator 5.1. Exquisitely detailed, these panels will definitely add the extra touch of realism you've been looking for.

CESSNA 1 Flightline

Cessna 1 Flightline includes panels for the Cessna 152, the 172 and the 182RG.

PIPER 1 Flightline

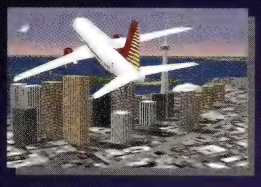
The Piper 1 Flightline includes panels for the Piper Arrow, Cherokee and Warrior.

Flightline Panels $24.95

Your challenge is here!

Flight Simulator for Windows 95 allows pilots to test their flying skills under a variety of conditions, from the cockpits of a Cessna 182 RG, Learjet 35A, Schwizer 2-32 Sailplane, Sopwith Camel and two new aircraft - a Boeing 737-400 and the Aerobatic Plane Extra 300. Flight Simulator pilots can execute aerobatic maneuvers just like those in real competitions!

Flight Simulator for Windows 95 contains more detailed, photorealistic scenery from throughout the world, including London, Tokyo, New York, Paris, Chicago, Hong Kong, Seattle and San Francisco. Multimedia elements include demonstrations of complex flying maneuvers (such as a Cuban Eight) by aerobatics champion Patty Wagstaff.



Flight Simulator Win95 Call!

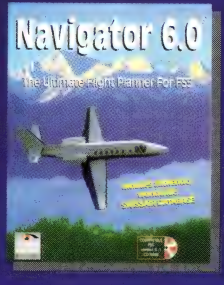
Come to our Rescue!

The pressure's on... The seconds count... Your Air Ambulance is fueled and ready for take-off... All your flying skills and reflexes are tested with this great add-on for Microsoft's Flight Simulator! Start your assignment by choosing a Non-Directional Beacon and receive directions to one of the eight accident scenes. After assigning your altitude, Air Traffic Control's audio instructions will give you a heading to the scene. Enroute, anything can happen. Be prepared for a sudden engine failure or violent weather shift. The assignments you're given are downright tough! Digital speech and sound effects add realism and suspense to your missions. Random weather, scenery and traffic conditions will test every piloting skill you have - and even the ones you don't!

Rescue Air 911 $39.95

New Version!

Navigator 6.0, the ultimate flight planner for Microsoft Flight Simulator® includes all default FS5 airports with their geographic coordinates, runways and frequencies. Combine any two airports as you prefer, then watch Navigator plan your flight right on the screen. Navigator generates an actual flight plan complete with frequencies, headings, wind correction, TOC and TOD calculation, alternate airport and much more. A separate fuel plan predetermines your expected fuel usage. Flight Simulator 5 will never be the same! Navigator generates a random weather report for any flight, transfers the complete weather data into an FS5 situation file and positions your Cessna or Learjet ready for take-off at your departure point.



Navigator 6.0 $34.95

MILITARY HANGAR

1942: Pacific Air War Scenario – 3.5"	$34.95
ACES (Red Baron, AOE, ATOP, A-10) CD	$54.95
Advanced Tactical Fighters – CD	$49.95
ATF: NATO Fighters	$26.95
AH-64D Longbow – CD	$49.95
AH-64D Longbow – Flashpoint Korea	$29.95
Air Warrior – 2.0	CALL
Apache – CD	$49.95
Back to Baghdad – CD	$39.95
Comanche 3 – CD	$50.95
Eurofighter 2000 – CD	$49.95
F-16 Fighting Falcon	CALL
F/A-18 Hornet 2.0	CALL
Falcon Gold – CD	$54.95
Fighter Duel – CD	$39.95
Hind – CD	$49.95
Jet Fighter III	CALL
Silent Thunder: A-10 Tank Killer II – CD	$49.95
Strike Commander – CD	$10.95
SU-27 Flanker – CD	$44.95
Super EF-2000	CALL
Top Gun: Fire at Will – CD	$49.95
Tornado – Desert Storm Scenario – 3.5"	$19.95
U.S. Navy Fighters '97 – CD	$49.95
U.S. Navy Fighters Gold – CD	$49.95
Wings of Glory – CD	$39.95
Wings: Over Europe – CD/MM	$39.95
Wings: Korea to Vietnam – CD/MM	$39.95
Wings: Midway to Hiroshima – CD/MM	$39.95
Wings: Saigon to Persian Gulf – CD/MM	$39.95

(800) Order Hours
10:00 am – 6:00 pm
Monday – Friday (Central)
Sat. 10:00 am - 3:00 pm

GROUND SCHOOL

Advanced Tatical Fighters Guide Book	$16.95
Adventures in Flight Simulator	$22.95
AH-64 Longbow Guide Book	$16.95
Allred Poor's Cross Country (FS5.x)	$19.95
Fighter Combat (Shaw)	$29.95
Flight Simulator Handbook (Stern)	$23.95

ACCESSORY HANGAR

CS Commander – 3.5"	$24.95
Joyswitch Switchbox	$39.95
Joystick Y-Cable	$11.95
Joystick Extension Cable	$11.95
Strategic Falcon or MiG – 3.5"	$24.95
Strategic Hornet	$19.95

FLIGHT SIM CENTRAL... THE FLIGHT SIM EXPERTS!

THRUSTMASTER HANGAR

ACM Game Card	$34.95
Cockpit – Seat Pads	$189.95
Cockpit – Shoulder Harness	$94.95
Cockpit – Switch Control Kit	$439.95
Cockpit – Basic	$679.95
Cockpit – External Skin	$959.95
Cockpit – Ladder	$145.95
Flight Control System	$59.95
Flight Control System – Pro	$104.95
F-16 – Flight Control System	$114.95
F-16 – Throttle Quadrant System (TQS)	$114.95
F-22 – Pro	$129.95
Formula T2 Driving Wheel	$124.95
Grand Prix Driving Wheel	$79.95
Rudder Control System	$104.95
Top Gun Stick	$39.95
Weapons Control System Mark II	$94.95
Wizzard Pinball Controllers	$32.95
X-Fighter Stick	$49.95
XL Controller	$29.95

NOTAM: We truly want you to be satisfied with your flying experiences with us! If you have a problem with an item purchased from us, please call us at (800) 477-7467 and we'll do our best to get you back in the air! If you find your purchase is defective, we will replace it with same item immediately. If you like, unopened software may be returned for store credit or exchange, less shipping charges. Incomplete items are subject to 15% restocking fee. All sales must be considered final. Shipping charges, regrettably, are not refundable. Please call (615) 754-8750 for return authorization number before returning items. We ask that you please check compatibility before ordering. Due to the volatile nature of the software business, all prices and availability are subject to change without notice (some items limited to store stock). Please call for items not listed. All our products are new and in original, unopened packaging. WE DO NOT RE-SHRINKWRAP MERCHANDISE!!!

Payment Methods: VISA, MASTERCARD and AMEX gladly accepted – no surcharge. Money Orders, COD, and Personal Checks also accepted. $6.00 COD charge. Please allow two weeks for Personal Checks to clear. Your credit card will not be charged until your order ships. Sale prices not available with any other discounts.

Shipping: UPS Ground $5.00, UPS 3-Day and UPS 2nd-Day Air to lower 48 states also available. Items over five pounds slightly higher. Shipment to Alaska, Hawaii, and Puerto Rico extra. Canada and other International orders please call or fax for shipping charges. We ship most items the same day!

Send Money Orders or Checks to:

FLIGHT SIM CENTRAL, 1440 Quarry Road
Dept. MW Mt. Juliet, TN 37122-7904

INT'L ORDERS: 615•754•8750
FAX ORDERS: 615•754•4138
http://www.fscentral.com
sales@fscentral.com

800-477-SIMS

VISA MasterCard

Gladly Accepted

BUILDING YOUR OWN COCKPIT

A continuation of the original 5 part series

More Realistic Sound
The Ultimate Sound System
Home Theater Sim Sound
Sim Surround Sound

What ever you call this article, be assured, that it contains the recipe for creating the most awesome sound system that the MicroWINGS staff has ever heard. When you are in front of a flight simulation, two of your senses do more to heighten the realism than any other - your vision and your hearing. This is why you'll find that your simulator 'feels' so much more realistic if you use it in a quiet room, with the lights turned off. Removing as much outside (non sim) visual and auditory distractions should be a primary goal in shooting for the most realism. Of course, the best solution is to enclose your cockpit. We will be covering that topic, how to enclose your cockpit (based on the cockpit we did in our original five-part series on building your own cockpit), in subsequent issues.

Back to sound - one of the two senses most responsible for making a simulation feel more realistic. Over the past years, we have heard sim sound delivered in many different ways and have also heard from users how one method or another is the ultimate. These methods cover the spectrum from larger speakers to subwoofers to headphones to speakers bolted to a chair and beyond. While various methods offer their own unique advantages, something was just not right with any one solution. At MicroWINGS, we spent the summer striving to get that really awesome sound system... and we did it! We did it by marrying several of the independent sound solutions with a unique way of tying them all together.

The Ingredients

Here is the breakdown of all the components we used:

Computer Sound Board - used to (obviously) deliver the sound from the sim to the 'cockpit'.

Aviation Band Scanner - used to pipe in real-time, realistic ATC chatter as back ground noise in the 'cockpit', further enhancing the realism and depth of our sim environment.

Stereo Amplifier - used to amplify the sound from the Computer and the Scanner to drive various speakers and headphones.

Headphones - used for two reasons. 1) To simulate real flying where headsets are required. 2) To solve the goal mentioned in the first paragraph - to remove as much outside (non sim) auditory distractions. The headsets we chose are full ear cup headsets so that the ear is completely enclosed by the headphones (just like most real aviation headsets). Because the ears are completely enclosed, we have removed **all** outside auditory distractions!

Headset Boom Microphones - used to enhance the realism by allowing the pilot to hear himself through speakers in the headphones just as a real pilot would using real aviation headsets. If your cockpit setup is for two pilots, then the realism is even greater as you will hear each other through the headphones much as you would if you were in a real plane with a pilot/co-pilot intercom system.

4-Channel Mixer - used to mix the sounds from the Pilot Mike, Co-Pilot Mike, Computer, and Scanner to achieve that perfect mix and volume setting.

Subwoofers - used to simulate the sound and vibrations caused by the engine(s) in the sim.

The Secret

The secret to our system is the use of the left and right channels of the Stereo to bring two different sound levels from the same Computer output into the cockpit. We split the sound from the computer into two. We take one end of the split and bring it right into the left channel on the Stereo. This will then drive the subwoofers (bolted to our Thunderseat cockpit chairs) via the left channel's speaker outputs. The remaining end from the split is wired into the mixer. The subsequent mixed output is then sent to the right channel on the Stereo. This will allow us to drive the subwoofers with just the sim sound and yet still have a little sim sound in our headphones with a separately adjustable volume level from the subwoofers. I know this is getting complicated, so I have diagrammed the setup/wiring in figure BYOC.1. It is wonderful to be flying in your cockpit and be able to adjust the volume in your headphones without affecting the volume coming from the subwoofers (which are simulating the engine and it's vibrations).

Component Details

The mixer needs to support at least 4 inputs, 3 of them microphone inputs and one a line input. We used an older model from Radio Shack. As best we can tell from the new 1997 catalog, the closest replacement model would be the 32-1106 which sells for $49.99. The only difference between it and our older model is that ours also had a master volume control for the mixed output. The 32-1106 should work just fine though.

The scanner we used is also an older model Radio Shack scanner, but the closest replacement is the 20-414 scanner in the Radio Shack catalog. Any scanner will do, as long as it receives the aviation band frequencies (108-174 mhz). The only reason we chose our model, was that at the time, it was the only model with a flat front-panel, a must for placement into a home-built cockpit.

The headsets we chose have built in boom microphones and look/feel very much like real aviation headsets. The best part is that they only cost $49.99 each, rather than the $100 to $500 that real aviation headsets cost. The ones we chose are Radio Shack headsets, part number 33-999. The boom mike is flexible and can be adjusted to be placed right where you need it. These headsets are also, extremely comfortable to wear - very important for long flight sim sessions. The headsets need to be plugged into just the right channel of the headphone jack on the Stereo. You will need to insert a stereo to mono adapter in between, so that both ear pieces receive sound even though you are hooked up to just one (the right) channel.

The subwoofers we used are 100 watt monsters that shipped with our Thunderseat cockpit chairs. The problem with subwoofers in a sim, is that they have to be turned up very loud to get the feel that you are looking for - the ***feel*** of that engine sucking avgas and producing hundreds of horses! With the volume so loud, it makes the sim uncomfortable to use.

The Mixing Of The Ingredients

Here is where the combination of solutions comes into play. The full cup headsets act as a buffer between you and the subwoofers. You can have them cranked way up and yet barely hear them in your ears - but rest assured your body will be feeling the subwoofers! Now mix in the very same sound that you are **feeling** from the subwoofers, but have it delivered via the headphones, and you are now magically transfixed into a virtual world. I do not know why this happens, perhaps it is because the body is receiving the same sound source from two, completely separated (via the headset) delivery mechanisms (the ear and the body). Perhaps the physiology professors out there can tell us why. We were just lucky to have stumbled in on this unique effect on the body.

The icing on the cake from the above effect, is the background ATC chatter going on that you can hear in your headphones. Take the headphones off, and all you hear is the engine. Put them back on and you can hear ATC. Again, very true to life in a General Aviation (GA) plane. Now the decoration on the top of the icing on the cake (whew! ☺) is hearing yourself (and co-pilot if you have a dual setup) inside the headphones because of the microphone(s). Again, just like in a real Cessna - where it is so loud, the only way to communicate is with hand signals or with a pilot/co-pilot intercom system using headsets with boom mikes like we are using. We were skeptical at first, thinking that the microphones would pick up the loud subwoofers and ruin the effect. Well, as it turns out, the microphones don't, they only pick up what is spoken directly into them.

The mixer, if setup inside your cockpit, will allow you to adjust the volumes (mix) between the pilot's microphone, the co-pilot's microphone, the scanner output, and the computer's sound output. The Balance control on the Stereo will act as the volume control for the headphones. Set the balance all the way to the left and then set the volume desired for the subwoofers. Then, with the headsets on, slowly adjust the balance to add some right channel. Stop when the volume in the headset is comfortable. Now take off into a simulation environment like you have never before experienced. *[MW✈]*

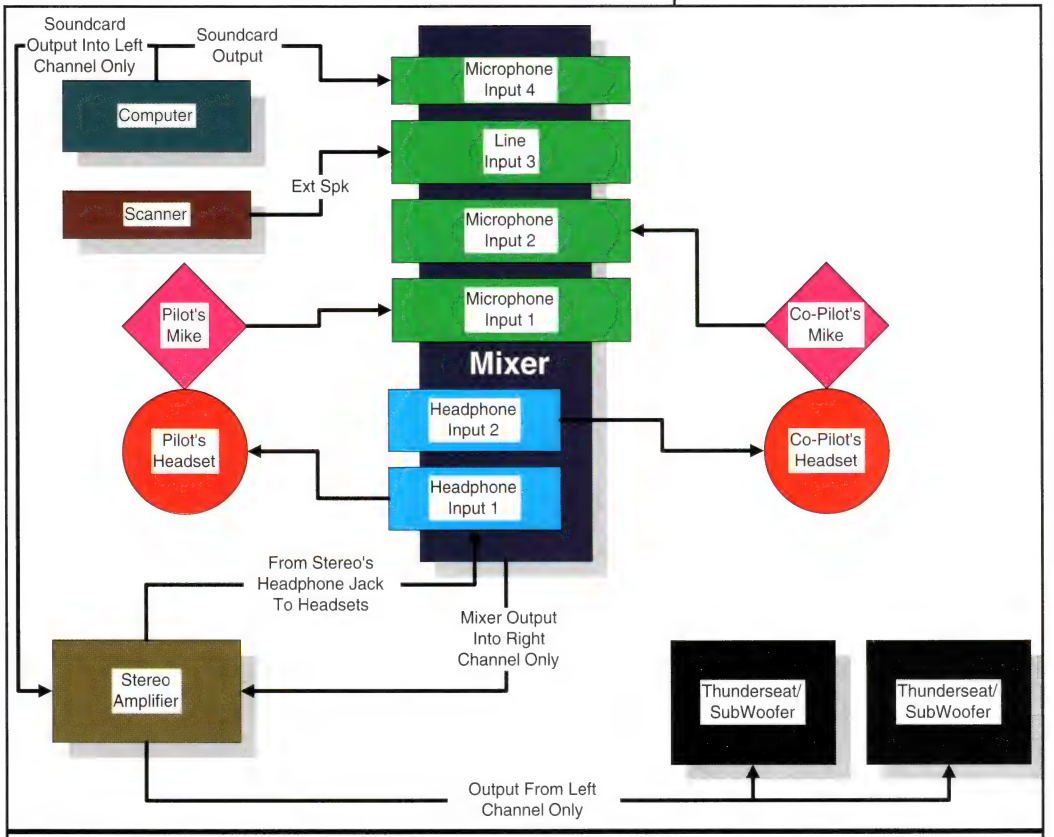


Figure BYOC.1 - The hookup diagram for the ultimate Flight Simulation Sound System (FS³).

Ask Dr. Sim

Q - How do I install the MW DFW in FS95?

A - To use the MicroWINGS DFW Add-On scenery with Flight Simulator for Windows95, you must copy files from your MicroWINGS disks into a folder in the directory where you installed Flight Simulator for Windows 95. Then you must run three EXE files and use the scenery library in Flight Simulator to finish installing the MicroWINGS DFW scenery.

To Copy The Files

1.Find the folder where you installed Microsoft Flight Simulator. The default is C:\PROGRAM FILES\MICROSOFT GAMES\FLIGHT SIMULATOR. In the steps below, this folder is referred to as [FLTSIM].

2.Create a MWDFW folder under your [FLTSIM]\scenery folder and name it [FLTSIM]\SCENERY\MWDFW.

3.Copy the file DISK1.EXE from disk #1, DISK2.EXE from disk #2, and DISK3.EXE from disk #3 to the MWDFW folder.

4.Create two new folders under the MWDFW folder with the names SCENERY and TEXTURE. These folders should be named [FLTSIM]\SCENERY\MWDFW\SCENERY and [FLTSIM]\SCENERY\MWDFW\TEXTURE.

To Run the DISK1, DISK2, and DISK3 EXE Files

You should run these EXE files from an MS-DOS command prompt.

1.Change to the [FLTSIM]\SCENERY\MWDFW folder and run DISK1.EXE, DISK2.EXE, and DISK3.EXE. Type disk1 [ENTER], disk2 [ENTER], and disk3 [ENTER] at the command prompt.

2.Delete the files DISK1.EXE, DISK2.EXE, and DISK3.EXE from the MWDFW folder. Type del disk1.exe [ENTER], del disk2.exe [ENTER], and del disk3.exe [ENTER] at the command prompt.

Completing Installation with the Scenery Library

To finish installing the MicroWINGS DFW scenery, use the scenery library in Microsoft Flight Simulator.

1.On the World Menu, click Scenery Library.

2.To display the Scenery Areas window, click the Files button.

3.Click the Add button.

4.When the Add Scenery Area window appears, in the Scenery Area Path edit box, type in the complete path to the MWDFW scenery folder and add a "*.BGL" at the end. The entry should be something like this:

[FLTSIM]\SCENERY\MWDFW\SCENERY*.BGL

5.Type the scenery area title as MicroWINGS Dallas/Ft. Worth and set the scenery area type to Local.

6.Set the scenery area layer to 0001.

7.Click the Scenery Area Active button, and then click on OK.

8.Click OK until you are out of the Scenery Library windows.

9.Now under World - Go To Airport, you should see an entry near the bottom of the list titled "USA - Dallas". Choose an airport and go flying throughout the Big 'D'!.

If You Get Lockups

On some machines, an apparent flaw in FS95 can cause lockups when you fly around DFW or Love Field airports. This flaw affects Dynamic scenery. If you get these lockups, you can do either of the options below...

•Turn off Dynamic Scenery for both Window 1 and Window 2.

or...

•Remove the file MWDFW20.BGL from the MWDFW scenery folder (this file contains our Dynamic / Static scenery).

Q - I purchased Flight Sim 95 and Flight Shop. When I try to install Flight Shop, it says I do not have a valid path to Flight Sim v5. Help!

A - The installation program that comes with Flight Shop assumes and requires that you have FS5.0 or FS5.1 installed on your hard drive. The steps below will show you how to setup your hard drive so that the installation program will think that FS5 is indeed on your system. Then, it can go ahead and install Flight Shop.

Create A Fictitious FS5 Installation On Your Hard Drive...

1.Create a folder on your computer named FLTSIM5.

2.Within the new FLTSIM5 folder, create a sub-folder named PANELS.

3.Switch to the FLTSIM5 folder.

4.Copy any file (a smaller one is best to save disk space) into the FLTSIM5 folder and name it FS5.INI.

5.Copy the same file above and paste it back into the FLTSIM5 folder 4 more times.

6.Rename the resulting four files to be FS5.COM, FSO001.FSO, FS5.OVL, and FSD001.FSO (be sure to note what letter is an Oh (O) versus a Zero (0)).

7.Switch to the PANELS folder.

8.Copy the same file from steps 4 & 5, into the PANELS folder and name it PANELSET.FS5.

Run The Flight Shop Setup.exe installer...

1.Be sure to specify the path to the FLTSIM5 folder we setup above, and not your FS95 folder.

2.If you want to use ATC features only, deselect the option to install Aircraft Factory (AF5).

3.You will get a warning that setup failed, this is normal for this work around, but everything will be just fine.

4.If you have not already downloaded the revised WAV files for FS95, do so now. These WAV files should be unzipped into your FS95's SOUND folder. If you do not have them, then you will need to copy the WAV files that got installed into a folder called FLTSIM5\ADVWAV. Copy them all to FS95's SOUND folder.

Cleaning Up The Fictitious FS5 Installation...

Flight Shop should now be installed on your machine. You should not need any files from the fictitious FS5 installation except one, the APLC.EXE file. Here is how to copy it...

1.In your FLTSIM5 folder you will now see a folder called ADV.

2.Copy the APLC.EXE file from this ADV folder, and paste it into your Flight Sim 95's ADV folder.

3.You may now delete the entire FLTSIM5 folder and all of it's sub-folders.

Running Flight Shop For The First Time...

1.When you first start the ATC portion of Flight Shop (FSFSADV.EXE in the FLTSHOP folder), be sure to first specify the location (path) of the ADV Compiler (example C:\FlightSim95\ADV\\APLC.EXE) via the Options menu of Flight Shop. Be sure to double-click on the APLC.EXE filename to get it to take. Re-open the Options-Set Path To Adv Compiler window to verify that the path setting took.

2.The path to FS5 setting under the options menu can be any EXE file such as FLTSIM95.EXE, or FSCONV.EXE (the flight shop adventure converter for FS95), etc. (We recommend setting it to FSCONV.EXE so you can quickly launch the Converter after you have created an adventure - see the next step below.)

3.Any adventure you create with Flight Shop will need to be converted into FS95 format before using it in FS95. The converter is a free download titled FSCONV.EXE and can be found on the MicroWINGS web site in the Download Files section, under Adventures or Aircraft. *[MW✈]*

INTERVIEW: Jonathan Stern

by Michael Fisher

In late February, I met Pittsburgh native, popular FS tutorial author, and fellow MicroWINGS columnist Jonathan M. Stern for lunch at a local Georgetown barbecue grill. While we dined on what I would argue are the best pulled-chicken sandwiches you'll find in Washington, D.C., Jon and I talked about the fascination with flying and flight simulation he's had since his teenage years, and how this interest led him from college in Wisconsin and flight training at the Embry-Riddle Aeronautical University to air traffic control at Washington National Airport and, ultimately, a challenging career in aviation law.

Today, Jon is one of the most widely-read flight simulation authors. His first book, "Flying On Instruments With Flight Simulator," sold over 16,000 copies; his most recent, FS5-specific work, "Flight Simulator Handbook" (reviewed in MicroWINGS' V3N4 issue), has already sold thousands of copies and was just recently published in French and Dutch. He traces his addiction to aviation back to when he was a thirteen-year-old boy growing up in Pittsburgh. His father was an executive of a company which owned a fleet of corporate jets and was able to get Jon some rides in the jump seat. All he saw happen in that small space gripped him intensely, and by the time he was sixteen he had made up his mind — his parents' original protests notwithstanding — to learn to fly. With some money he earned working part-time at a grocery store plus some help from his folks, he took lessons and earned his single-engine land rating during his senior year in high school.

Jon freely admits that he had been the stereotypical, direction-less, teenager until he discovered aviation. "Learning to fly finally let me pursue something I was really interested in, and I attacked it with reckless abandon — which is of course not the best thing to do when you're flying airplanes," he joked. Even so, he had not yet considered an aviation-related career. Instead, he began his undergraduate education at the U. of Wisconsin and continued his flying with the school's flying club. After his first Madison winter, though, Jon said "the hell with this!" and left for Florida to attend Embry-Riddle Aeronautical University. At the time, Embry-Riddle offered a "flight technology" program, which provided ground school and basic flight training without all of the intense academic work needed for a bachelor's degree. By the time he was nineteen, Jon had earned his commercial and CFI single-engine, multi-engine, and instrument ratings. He applied to the airlines but quickly discovered that time was against him. "Airline jobs just didn't exist at the time for people who trained in civilian programs. They were being offered almost exclusively to former military pilots." He decided to switch to a degree program at Embry-Riddle and worked as a flight instructor for the school while completing his course work. In time, Jon's budding fascination with electronic gadgets and his work as a CFI led him to experiment with the development of interactive flight training videos.

Many of us recall when the nation's air traffic controllers walked off the job in August 1981. After he graduated from Embry-Riddle, Jon seized the opportunity and was hired by the FAA as a replacement controller in December 1981. After training at the FAA Academy in Oklahoma City, Jon worked local control and TRACON at Washington National Airport for two years. He shared several of his experiences with me, which ranged from the silly to the frightening to the just plain bizarre: "I remember one Sunday morning when I was working ground control at National. A pilot had arrived in a Mooney Ranger that looked surprisingly familiar to me — Embry-Riddle had owned it when I was teaching there! I chatted with the pilot briefly, and he mentioned that he had recently bought the plane from the school. I distinctly remember him praising that little plane to High Heaven — 'fabulous plane, great condition, never had a problem with it' and so forth. Later that morning he took off northwest-bound on runway 33, but instead of going straight and then left, he flew *right through* the prohibited airspace (known as P-56) over the White House and the National Mall, and squawked 7700 and then 7600, which meant that all his radios had failed. He made a 180 back towards the White House, flew over P-56 a second time, and made an abrupt landing on runway 18 while a DC-9 was on short final for runway 36! Of course, we waived off the DC-9, but you can imagine what a heck of a day that made for us!"

Jon also explained why people can sometimes find control tower maps with long strips of masking tape stuck to the back to form sets of numbers — 7.5, 9.3, and so on. "Every now and then we'd ask a plane that had just landed to taxi past the tower....as he'd come by we'd pull out a chart and hold it up against the window glass with the taped-up side facing out.....yep, we were rating the pilot's landing!"

After working in the tower for two years, Jon decided that ATC work just wouldn't be right for him in the long haul, and he decided to attend law school. "I had taken an aviation law course at Embry-Riddle and was really motivated by my professor. He offered me a law school recommendation and I took him up on it... I was accepted to the American University law school in Washington, D.C."

"My interest in aviation continued. I wanted to focus on aviation law, and I spent the next few summers working in the Justice Department's aviation litigation section." After Jon received his law degree in 1986, the Justice Department hired him as a trial attorney and he defended the U.S. Government in air traffic controller negligence cases. He entered private practice in 1987 and is currently a member of the Washington, D.C. law firm of Dombroff & Gilmore, P.C.

Jon explained that his interest in computers first began when he was a high school senior. The University of Pittsburgh had a program that gave high school students access to the

University's computers. I would spend time after school keying BASIC programs into an old DEC-10 mainframe teletype machine... I can remember the first time I saw a CRT connected up to that machine — it must have been 1976 or 1977 — and I couldn't believe how awful it was. I wanted that clunky teletype back!"

Jon owned a Commodore 64 in law school and used it to write up his class notes — but he found another use for it as well — he bought subLOGIC's Flight Simulator II during the first week of its release. "The screen refresh rate was so poor I could hardly land it. But I enjoyed it nonetheless. I was so enthralled by its instrument flight capabilities even though I'm pretty sure there was no ADF in that version." When Flight Simulator 3 was released a few years later, it gave Jon enough of a reason to switch from his C-64 to the IBM PC. "I was even more amazed at its authenticity, and continued to be impressed with its IFR simulation capabilities. But later, when Flight Simulator 1.0 for the Macintosh was released...with its Learjet simulation and real digitized sounds...I just *had* to have it and I switched platforms again to a Macintosh Plus. A year later when Flight Simulator 4 for the PC was released, I found myself on the wrong platform — all I could do was 'ooh' and 'aah' a lot, and run ATP on a friend's machine instead. I *really* got into ATP despite its graphic shortcomings and flight equations. It held my interest for a long time."

In 1986, Jon had started writing a book on instrument flying with Flight Simulator when he saw Charlie Gulick's "40 Flight Simulator Adventures" in a local bookstore. Jon wrote down the name and address of Charlie's publisher — Compute! — and wrote them describing his idea for a book that would be a compilation of instrument flight tips and real-world approach charts. "Steve Levy at Compute! responded and requested an outline for the book and some sample text. I put the bulk of the book together in about six weeks between the time I completed my bar exam and before I started working for Justice. It wasn't targeted specifically at any particular FS version, and it transcended platforms. Even though it was released before FS 4, it gained its greatest popularity through FS4 users."

When Flight Simulator 5 shipped in 1994, Jon jumped at it. "At the 1994 MicroWINGS conference in Dallas, people kept coming up to me asking whether I was going to write another book. After the conference I negotiated another contract with Compute!, but they pulled out of the book publishing business altogether shortly after I delivered the manuscript to them. It was a real struggle to get the book published, but eventually a division of Macmillan took on the project and Flight Simulator Handbook hit the shelves."

Jon continues to focus on the instrument flying aspects of Flight Simulator, incorporating new software such as Flight Shop into his bi-monthly Under The Hood column. Recalling his amazement at the realism of the Flight Simulator experience with the introduction of each new version, he looks forward to each new enhancement of Flight Simulator and related software. He hopes to continue offering his patient advice to those learning to fly by the instruments on Flight Simulator. *[MW✈]*

COMPUSERVE Your Electronic FBO

by Greg Hannigan

Getting The Most From Your Online Dollar?

It amazes me sometimes to look around me and see the popularity of the online world today, especially with regard to the topic of flight simulation. We've got four major online services at our disposal plus a huge variety of choices made available through the Internet - newsgroups, web sites, and so on. Just a few short years ago the average home computer user might have opted to not even own a modem due to the lack of perceived uses for it, and now it's hard to buy a computer that *doesn't* have both a modem and some sort of Internet or online service software package. My local newspaper even has the occasional front-page article about popular web sites, and that's something I thought I'd *never* see.

All these choices must be somewhat intimidating to the new home computer user who wants to "get connected", and who can blame you/them? How does one know which commercial online service is the best? Is it better to establish an account with a local Internet Service Provider (ISP), or is it wiser to subscribe to an online service and access the Internet from there?

It gets a little mind boggling, and to top it all off there's an issue to think about that goes above and beyond which online service or access method is "best", and that issue is **cost**.

Whether you choose CompuServe (CIS) or another online service such as The Microsoft Network or America OnLine to seek out a great place to exchange conversation and/or files regarding flight simulation, you'll find that online charges can add up *very* quickly. If you're a person who likes to browse while online, you can expect those charges to sometimes become **much** higher than you expected. Short of canceling your account and staying off-line, what can be done to let you enjoy the online world without having to hock your belongings (or loved ones) to pay the bill?

For members of most online services, there are very few options. Get online, go where you want to go, read what you want to read, and download what you want to download - and then get off as quickly as possible. Most online services provide you with custom designed proprietary software that you *must* use in order to access that service, so you're virtually locked into a specific access method, and thus a specific type of online habits.

CompuServe, however, stands out as the only online service that doesn't make that same requirement. Yes, CIS does have proprietary software available for the Windows, DOS, and Macintosh platforms. You almost certainly have a copy in one form or another if you're a CIS member, and I do recommend that people use that software initially when they establish their account and get acquainted with the service and its structure. But after doing so, using that software for anything

more than online chats or conferencing is like hopping on a moped to make a 30 mile trip when a brand spankin' new Ferrari is available to you!

If you're a member of CompuServe's FSFORUM, think for a second about what you do when you come to the forum with the service's proprietary software (let's use WinCIM, CIS's Windows-based access software, as an example). Perhaps you take a look at our message board for topics of interest, browsing the subject list and reading and possibly replying to messages that catch your eye. Then you might move on to our forum libraries, checking for files that have been newly uploaded since the last time you visited the forum. There might be a new scenery upload or Flight Shop aircraft that sounds interesting, and you'll probably download it to your machine.

With WinCIM as your CIS access software, you do all of the above *while online*, with the clock ticking in the background adding up your total time online. Depending on which type of the available billing plans you've chosen for your CompuServe account, you're likely allotted a fixed amount of "free time" that you can spend on the service in a given month. If you are a typical FSFORUM member and the activities I've mentioned above take you about an hour to perform and you come to the forum once every day, the average FSFORUM member can expect to be able to visit FSFORUM only five days in a given month before they run out of "free time" and begin to pay extra for every minute they stay online. That's right - every minute. How much every minute? For most users, it's a little less than 5 cents for each additional minute. If that doesn't sound like much to you, consider that staying online for an hour (after your free time is used up) will cost you an additional 3 dollars. For a typical CompuServe member, that's about a 30% increase from the base monthly price for having a CompuServe account! What can you do to keep this all under control?

A popular type CompuServe access software known as the off-line reader (OLR) or navigator now enters stage right.

OLRs became popular some years ago when the cost of CompuServe was significantly higher than it is today. A CIS member would pay $22.80 an *hour* for access at speeds as high as the then top-of-the-line 9600 baud. That was about the time I came on board to CIS, and you can bet that I was ready to do almost anything to reduce my connect time charges - anything, that is, short of giving up FSFORUM.

I had heard about several popular OLR navigators that seemed to be "all the rage" at the time - TAPCIS and OzCIS being the two most often recommended. I rather arbitrarily chose to give OzCIS a go and dug right in. Always too impatient to RTFM as they say, I plodded through the quickstart guide just to get my feet wet.

After about two months of using OzCIS I realized a decrease in my CompuServe bill of more than 60%!! Yes, you're reading that right! But how could that be possible? Just what did an OLR do that made my charges drop so dramatically?

A CompuServe OLR has one main purpose in life - get you on CIS, do what you want it to do, and then get da heck off - as quickly and efficiently as possible. Most OLRs accomplish this by taking a "pass" approach to online work. Let me continue with the OzCIS example and illustrate just how an OLR works.

I use OzWin (the current Windows-based successor to OzCIS) to do all of my forum work. In a typical session I'll start with a "New Pass". OzWin will log on to CIS automatically for me and go directly to FSFORUM where it will read all new messages in the message sections I've specified and collect them into a file on my hard drive. It will then scan the forum's libraries looking for any new files that may have been made available since the previous day. After performing those two basic tasks, OzWin will log off immediately. In a typical first-thing-in-the-morning session, the program will have collected anywhere from 100 to 250 new messages (depending, of course, on forum traffic) as well as a listing of all new uploads to the forum - all within the span of usually no more than 3 minutes.

Now I'm free to read all those messages, replying to many, while I'm *off line*. No phone connection charges, no CompuServe connect time being accumulated, no umbilical whatsoever tying down my wallet. I'm free to walk away from the computer for a break and come back later if I choose - everything's done at *my* leisure. OzWin gives me a full featured text editor to read and reply to messages, so I never have to shut the program down or do different things with different programs. When I'm done, all I need to do is tell OzWin to do a "Send Pass" and it will log on to CompuServe, go to FSFORUM, and post all my replies. In addition, OzWin will automatically download any of those new files (the listing of which I also browsed through while off-line) that I've specified. Just as in the case of a "New Pass", OzWin will get on, get the job done, and get off, all with none of the time wasting behavior that we mortals tend to throw into the mix.

There are a variety of off-line readers available for use on CompuServe, and we have trial editions of both TAPCIS and OzWin available for download on FSFORUM. I'd strongly encourage my readers to come by and give them a try. Using them may seem a little daunting at first, but as with many things in this world, a little investment of time can reap huge rewards. Your mileage may of course vary, but I can promise you that if you are a CompuServe member who makes frequent use of the service you will realize some savings on your bill, and that savings could be *significant!*

About the author; Greg Hannigan is an Assistant Sysop on CompuServe's FSFORUM and a long-time flight simulation fanatic. Greg's CompuServe ID is [71554,763] - drop by the forum and say Hello! [MW✈]

Statement of ownership, management, and circulation (Required by 39 U.S.C. 3685). 1. Publication Title: MicroWINGS Magazine. 2. Publication No. 1068-3275. 3. Filing Date: October 23, 1996. 4. Issue Frequency: Bi-Monthly. 5. No. of Issues Published Annually: Six. 6. Annual Subscription Price: $49 (USA). 7. Complete Mailing Address of Known Office of Publication: MicroWINGS, 381 Casa Linda Plaza #154, Dallas, Texas, 75218-3423. 9. Full names and Complete Mailing Address of Publisher, Editor, and Managing Editor: Robert MacKay, MicroWINGS, 381 Casa Linda Plaza #154, Dallas, Texas, 75218-3423, Robert MacKay, MicroWINGS, 381 Casa Linda Plaza #154, Dallas, Texas, 75218-3423, Robert MacKay, MicroWINGS, 381 Casa Linda Plaza #154, Dallas, Texas, 75218-3423. 10. Owner: Robert M. MacKay, 6745 Country Club Circle, Dallas, Texas, 75214, Debra E. MacKay, 6745 Country Club Circle, Dallas, Texas, 75214. 11. Known Bondholders, Mortgagees, and Other Security Holders Owning or Holding 1 Percent of More of Total Amount of Bonds, Mortgages, or Other Securities: None. 12. For completion by nonprofit organizations authorized to mail at special rates. The purpose, function, and nonprofit status of this organization and the exempt status for federal income tax purposes: (Check one) _ Has Not Changed During Preceding 12 Months, _ Has Changed During Preceding 12 Months. 13. Publication Name: MicroWINGS Magazine. 14. Issue Date for Circulation Data Below: Jul/Aug 1996 (Vol. 4, No. 4). 15. Extent and Nature of Circulation: Average No. Copies Each Issue During Preceding 12 Months / Actual No. Copies of Single Issue Published Nearest to Filing Date. 15a. Total No. Copies (Net Press Run): 3,367 / 4,000. 15b. Paid and/or Requested Circulation. 15b(1). Sales Through Dealers and Carriers, Street Vendors, and Counter Sales (Not Mailed): 0 / 0. 15b(2). Paid or Requested Mail Subscriptions (Include Advertiser's Proof Copies/Exchange Copies): 2,903 / 3,407. 15c. Total Paid and/or Requested Circulation (Sum of 15b(1) and 15b(2)): 2,903 / 3,407. 15d. Free Distribution by Mail (Samples, Complimentary, and Other Free): 133 / 130. 15e. Free Distribution Outside the Mail (Carriers or Other Means): 94 / 110. 15f. Total Free Distribution (Sum of 15d and 15e): 227 / 240. 15g. Total Distribution (Sum of 15c and 15f): 3,130 /3,647. 15h. Copies Not Distributed. 15h(1). Office Use, Leftovers, Spoiled: 237 / 353. 15h(2). Return from News Agents: 0 / 0. 15I. Total (Sum of 15g, 15h(1), and 15h(2)): 3,367 / 4,000. Percent Paid and/or Requested Circulation (15c / 15g x 100): 92.7% / 93.4%. 16. This Statement of Ownership will be printed in the Sep/Oct 1996 issue of the publication. 17. Signature and Title of Editor, Publisher, Business Manager, or Owner: Robert M. MacKay, President and Editor, October 23, 1996.

FREE

UPGRADE DRIVER DISK FOR MICRO-SOFT FLIGHT SIMULATOR FOR WINDOWS 95 AND FOR SIERRA PRO PILOT WHEN YOU ORDER THE FLY•IT™ GA-1 CONTROL PANEL BEFORE JAN. 1, 1997

FLY•IT

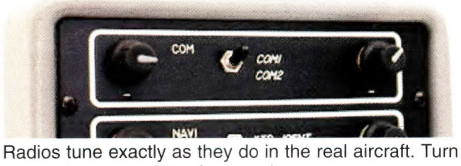
YOUR PERSONAL FLIGHT SIMULATOR $695

GAME TO AIRCRAFT

Most pilots feel as long as they must deal with the keyboard during a flight they are playing a game, not flying an airplane, even if they are using a yoke and rudder pedals. Immersing yourself in the aviation environment is difficult or impossible.

The FLY•IT™ General Aviation Control Panel is all the pilot needs to fly the entire flight. Total immersion in the reality of the aircraft is now possible.

ALL CONTROLS ARE THE SAME AS THE REAL AIRCRAFT



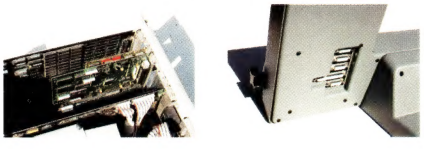
Radios tune exactly as they do in the real aircraft. Turn the knob to change the frequencies.

A real throttle quadrant. Throttle, propeller, and mixture controls with friction adjust.
Jet thrust levers. When you decide to fly a jet the throttle is engine 1 and the prop is engine 2. On a 727 the mixture is engine 3. Thrust reverse is last 1/8 of lever travel. All engines operate independently.

COMPUTER REQUIREMENTS

Pentium microprocessor, 8 MB ram, Super VGA video, sound board with game port disabled, empty ISA slot, and your flight simulation software.

INSTALLATION

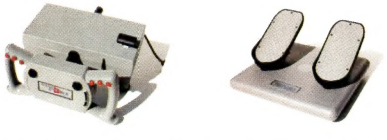


Simply install the EPIC game card (included) by plugging it into an open 8 or 16 bit ISA slot. Turn off all existing game ports, plug in the cables provided, run the FLY•IT™ installation disk and FLY•IT™.

SOFTWARE

All general aviation software that is available from your local software store is supported. A FLY•IT™ driver disk is included for Microsoft Flight Simulator 4, 5.1 and subLOGIC ATP, Flight Light (Sierra Flight). Additional driver disks for customer supplied software like IFT-PRO, Instrument Pilot, Pro-Pilot, FS 95, etc. are only $20 each.

YOKE AND RUDDER PEDALS



CH Virtual Pilot Pro and Pro Pedals are available from FLY•IT™ for $160 a set when you purchase the FLY•IT™ GA-1 Control Panel.

WARRANTY

All FLY•IT™ products are guaranteed against de-fects in materials and workmanship for one year.

SHIPPING

US GA-1	$25 Yoke & Rudder	$25 both	$40
Canada	$35 Yoke & Rudder	$35 both	$60
Europe & Pacific Rim	$92	$92 both	$153

Duties and Taxes not included.

LEARNING AND TRAINING

REAL SIMULATION **REAL AIRCRAFT**

The FLY•IT™personal simulator is so real with high fidelity that significant learning takes place.

Learn, totally understand and practice concepts of maneuvers, navigation and procedures, even cockpit resource management. Then time in the real aircraft is quality training time, perfecting and polishing flying skills.

Soon FAA will allow a portion of flight time required for the instrument rating to be logged as flight time.

Skills perfected on the FLY•IT™ panel can reduce time required to take your private check rides. National average is around 70 hours, with the FLY•IT™ control panel you will be closer to the minimum of 40 hours and will be a better pilot.

ORDER NOW! 619-434-1940

FAX 619-720-9916
EMAIL tjsj@n2.net
3042 Highland Dr.
Carlsbad, CA
92008 USA

FLY•IT

VISA MasterCard

FLY•IT™ SIMULATORS
http://www.handymgt.com/fly-it

Directory of MicroWINGS Commercial Members

Aerosoft GmbH
Airport Paderborn / Lippstadt
Büren, Germany 33142
(49)2955-7603-10 (V)
(49)2955-7118 (F)
Producer of the ACP Panels, FS5 scenery designer, FS5 & ATP sceneries, aircraft collections, and other flight simulation related products.

AETI
4330 Barranca Parkway
Suite 101-212
Irvine, CA 92714
(714)551-0372 (V)
(714)551-2695 (F)
Marketers of motion cockpits, control panels, and software for use with aerospace simulators.

Amtex Software Corp
RR #2, Hwy 2 West
Belleville, Ontario
Canada K8N 5J3
(613)967-7900 (V)
(613)967-7902 (F)
Distributors for North America of software for flight simulations.

Aviation Teachware Technologies
14100-F
Parke Long Court
Chantilly, VA 22021
(703)378-7590 (V)
(703)378-2511 (F)
Publishers for North America of the entire product line of Elite IFR simulators and related avionics and flight controls from Precision Flight Controls and NT Systems.

ATC Flight Simulator Company
6330 Arizona Circle
Los Angeles, CA 90045
(310)568-0800 (V)
(310)568-0115 (F)
Mfgrs of high-fidelity, fully instrumented, cockpit simulators.

BAO, Ltd.
2004 Fox Drive, Suite G.
Champaign, IL 61820
(217)356-9796 (V)
(217)356-7895 (F)
Authors of Flight Simulator, Tower, FSFS, and scenery.

CH Products
970 Park Center Drive
Vista, CA 92083
(619)598-2518 (V)
(619)598-2524 (F)
Mfgrs of the Flightstick (/Pro), Virtual Pilot, Mach series joysticks, and the Gamecard 3 Automatic joystick adapter card.

Digital Perceptions
212 W. Escalones, Ste A
San Clemente, CA 92672
(800)900-1969 (V)
(714)366-9565 (V)
(714)366-9563 (F)
Publishers of Pilot-In-Command.

Flight Computing Catalog
42 Digital Drive #14
Novato, CA 94949
(415)883-7300 (V)
(415)883-7599 (F)
Publishers of Flight Computing Catalog (a collection of aviation products, software, & apparel).

Flight Link
290 Airpark Blvd.
Chico, CA 95973
(916)891-4987 (V)
(916)891-0405 (F)
Standard and custom made flight controls for most of the popular flight sims on the market.

Flight Safety International
8900 Trinity Blvd.
Hurst, TX 76053
(817)595-5450 (V)
(817)595-5479 (F)
Professional classroom and full motion flight simulator based pilot training. Is also involved with the development and add-ons for Microsoft's Flight Simulator.

Flight Sim Central
1440 Quarry Road
Dept 894
Mt. Juliet, TN 37122
(800)477-7467 (V)
(615)754-8750 (V)
(615)754-4138 (F)
Int'l mail-order store specializing in flight simulation hardware & software.

Fly-It Simulators
3042 Highland Dr
Carlsbad, CA 92008
(800)983-3744 (V)
(619)434-1940 (V)
(619)720-9916 (F)
Mfgrs of the Fly-it motion platform and flight simulation Control Panels.

Genovation Inc.
17741 Mitchell, North
Irvine, CA 92714
(714)833-3355 (V)
(714)833-0322 (F)
Mfgrs of the Parallel Gameport.

Jeppesen Sanderson
55 Inverness Drive East
Englewood, CO 80112
(303)799-9090 (V)
(303)784-4137 (F)
Authors & Publishers of FS-200 PC Instrument Simulator, Navigation Charts, Training Matls, & Pilot Supplies.

Kikiware
124 S. Carter Ct.
Louisville, CO 80027
Assists the stars (developers) of the Flight Simulator software universe.

Lago
Viale Masia 79
Como, CO
Italy 22100
(39)31-300174 (V)
(39)31-300214 (F)
Distributors for 3DAGS, Scenery Italy for FS4/5, and Scenery Italy for ATP.

Looking Glass Technologies
1 Alewife Center, Suite 450
Cambridge, MA 02140
(617)441-6333 (V)
(617)441-3946 (F)
Publishers of Flight Unlimited.

Machado & Associates
P.O. Box 6030
San Clemente, CA 92674
(714)361-8963 (V)
Aviation speaker and author of various books on flying.

Microscene Inc.
PO Box 2325
San Ramon, CA 94583
(510)838-2732 (V)
(510)838-2735 (F)
Creators of scenery packages for Microsoft.

Microsoft Corp
One Microsoft Way
Redmond, WA 98052
(206)637-9308 (Support)
(206)936-7329 (F)
Publishes Flight Simulator, A&SD, and Scenery Disks.

Nomissoft GesmbH
St. Julienstr. 2/406
Salzburg, Austria
A-5020
(43)662-877689 (V)
(43)662-877689 (F)
Authors of 3D-AGS (aka ATP Companion), ATP Utils, and other ATP related software.

PILOT's GesmbH
Wipplingerstr 24-26
Vienna/Wien, Austria
A-1010
(43)1535-9010 (V)
(43)1535-4010 (F)
Producers of FSWG Hong Kong scenery.

Precision Flight Controls
11500 Sunrise Gold Cir.
Suite D
Rancho Cordoba, CA 95742
(916)638-1310 (V)
(916)638-1426 (F)
Mfgrs of high quality flight controls for use with Flight Simulator, Elite, IFT-Pro, and other sims.

R.C. Simulations
The Hangers,
Bristol Airport,
Lulsgate, Bristol
United Kingdom
BS19 3EP
(44)1275-474550 (Voice)
(44)1275-474855 (Fax)
Mail Order flight sim specialists who also distribute/publish the Gemini UK scenery, Micro Navigator, Whizz-Wheel, and more.

R&R Electronics
4009 Parkwood St.
Brentwood, MD 20722
(301)699-5277 (Voice)
(301)277-5447 (Fax)
Mfgrs of the EPIC input controller card.

RMM Consulting
977 N. Rustic Circle
Dallas, TX 75218
Author of Flight Planner , PPT, and the ATC portion of Flight Shop.

Sierra
3380 146th Place SE
Bellevue, WA 98007
(206)649-9800 (V)
(206)641-7617 (F)
Publisher of various sims including Flight and ProPilot.

SimuFlite Training Int'l
2929 W. Airfield Drive
Box 619119
D/FW Airport, TX 75261
(214)456-8000 (V)
(214)456-8133 (F)
Professional classroom and full motion flight simulator based training (business jets).

TekMate
15307 Parkville Rd.
Houston, TX 77068
(713)440-5542 (V)
(713)440-5669 (F)
Author of SEE04, AFD, FS-Pro, and Real Weather Pilot. Runs the LINX BBS and is a reseller of FS related software.

Thrustmaster, Inc.
7175 NW Evergreen Pkwy
400
Hillsboro, OR 97124
(503)615-3200 (V)
(503)615-3300 (F)
Mfgrs of the FCS, PFCS, WCS Mk II, RCS, and ACM flight control devices and game card.

Thunderseat Technologies
17835 Sky Park Circle, Suite C
Irvine, CA 92714
(714)851-1230 (V)
(714)851-1185 (F)
Mfgrs of the ThunderSeat, side consoles, ThunderPedals, and YM-2 Yoke/Panel.

Viewpoint DataLabs
625 S. State St.
Orem, UT 84058
(800)328-2738 (V)
Developers of data resources for 3D software including aerospace simulations.

Wagner Computer Products
306 A Oswego Road
Pleasant Valley, NY 12569
(914)677-3794 (V)
(914)677-6930 (F)
Manufacturer of the Microflight Console/Yoke and Pedals.

Xavious Software
43308 Gadsden #206
Lancaster, CA 93534
(805)723-7600 (V)
(805)723-7600 (F)
Publisher of Air Traffic Control simulations.
[MW✈]

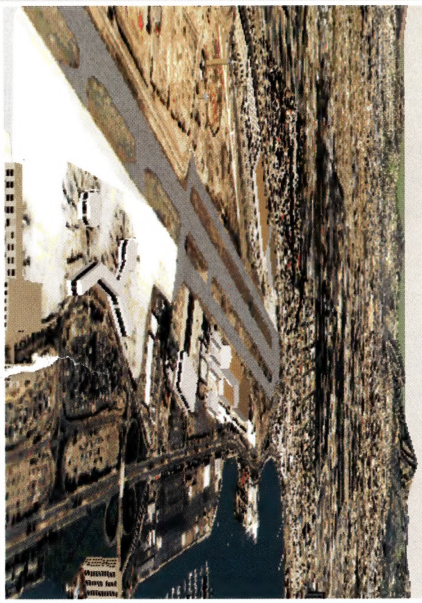
Advertisers Index

Aerosoft - All Products.....19
CHS Distributing.....48
CH Products - All Products.....2
Flight Sim Central.....38
FlyIt Simulators - GA1 Panel.....45
Jeppesen - FS200 Sim.....14
Just Planes Videos.....16
Looking Glass - Flt Unlimited.....21
Mailsoft - ATP Around The World.....32
Microsoft - Flight Sim 95.....6,7

In Upcoming Issues

Interviews With Authors
Reviews of Elite, Flight Adv's, and more
Last Flight To Meigs
More IFR and VFR Flying
More Flight School and Round Robins
Scenery Design and Cockpit Building

SNEAK PEEKS



FSWG San Diego

Pilot's is at it again, after creating the block-busters of Hong Kong and Madrid, they are soon going to be releasing their San Diego scenery. Here we see Lindberg Field (SAN) and a view of the harbor in front of downtown San Diego. The Coronado Bridge rises in the background.

Israel

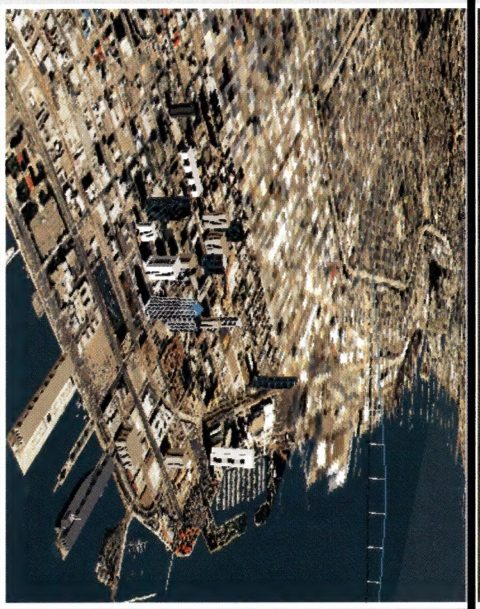
Expected to release in the 1st quarter is a new scenery covering all of Israel in exquisite detail. The scenery shows off the deserts, mountains, and shores and includes all the major cities. Shown here are Keneset and Haifa. Contact Gabe Eisner via email for more details at geisner@msn.com.

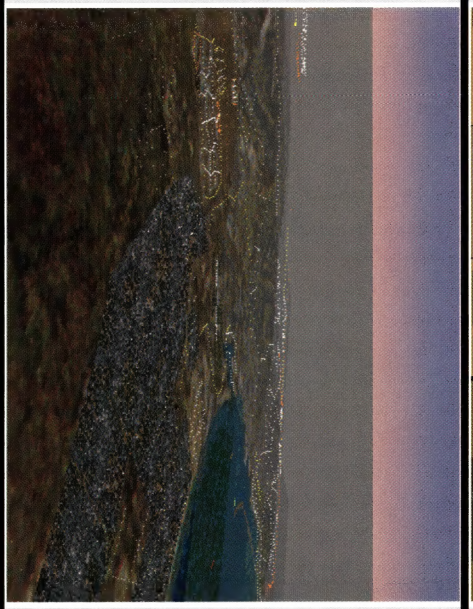
Kruesi Panels

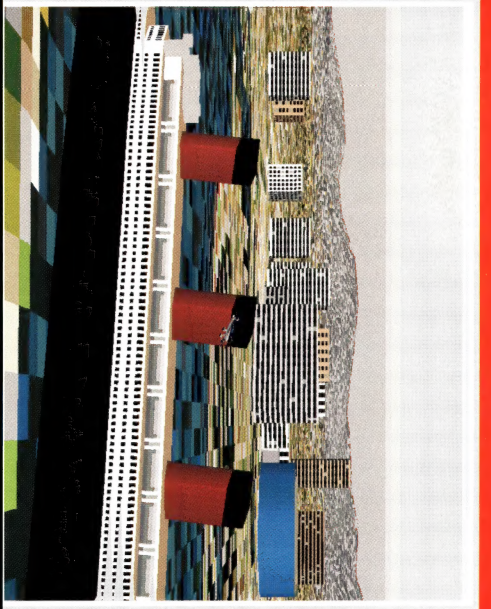
Famous panel maker, Peter Kruesi (most notably known for his B737 panel previewed in V4N3 of MW Magazine), is at it again with these new B747 and B757 panels due out soon. Multiple panels show engine guages and radio stacks in superb detail.

Southern California

The first FS95 expansion pack from Microsoft will cover **all** of Southern California. Here we see the B737 approaching Big Bear City with its lake and airport nestled amongst the mountains. Also shown is the Extra 300 buzzing the stacks of the Queen Mary, berthed at Long Beach. The package will also include voice driven adventures.







NEW VERSION : 1.1

The most advanced single upgrade ever produced for Microsoft Flight Simulator

THE STUNNING NEW WORLD OF *FSFX*

FSFX brings you a stunning upgrade package for **Microsoft Flight Simulator** the like of which you've never seen before.
Working with the Microsoft Flight Simulator programme, *FSFX* utilises a new type of graphics technology to reproduce stunning, life-like effects for Scenery, Aircraft Sounds and Navdata.

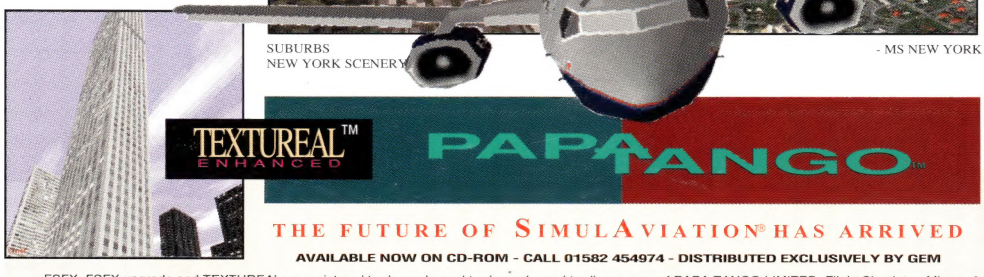
LUGANO/SWITZERLAND - APOLLO EUROPE 1

FSFX enhances scenery for Microsoft's New York, Paris, Japan and Caribbean, Apollo Europe 1, the rest of the entire Flight Simulator World **and also Europe 2!**

Incredible realism once thought only possible on flight simulators costing millions is now here thanks to new technology we use to create the stunning world of *FSFX!*

FSFX brings you a new level of realism and detail unprecedented in the whole history of SimulAviation.

THE MOST ADVANCED UPGRADE EVER!
FLIGHT GUIDE
HANDBOOK
WITH NEW EUROPE 2 ENHANCEMENTS
FSFX upgrade
NEW YORK - PARIS - CARIBBEAN - EUROPE I/II - JAPAN - WORLD
NEW YORK BEFORE FSFX
NEW YORK - AFTER FSFX



SUBURBS NEW YORK SCENERY - MS NEW YORK

Only *FSFX* features these additonal upgrade extras:

NEW highly-detailed enhanced Boeing 737-300 with PRO-SERIES Flight Model featuring 7 liveries from the world's airlines.

OVER 30 NEW SOUNDS: Boeing, Airbus, Business Jets, Military and Private Small Prop sounds with:

A NEW Digital SOUND MANAGER that makes choosing your new sounds as easy as typing the word "engine".

NEW BOEING PANELS accurately drawn with working instrumentation.

NEW CLOUD TEXTURE that brings the realism of thunder and rain effects to FS!

MASSIVE 165pp MANUAL with: Flight Adventures, Data, Checklists, Weather, Fuel Burn, Speed/Distance Calc's & NAVDATA SCENERY with US NavAids from the REAL WORLD with a full NAVDATA LISTING!

TEXTUREAL™ ENHANCED

PAPA TANGO™

THE FUTURE OF SIMULAVIATION® HAS ARRIVED

AVAILABLE NOW ON CD-ROM - CALL 01582 454974 - DISTRIBUTED EXCLUSIVELY BY GEM

FSFX, FSFX upgrade and TEXTUREAl are registered trade marks and trade marks and trading names of PAPA TANGO LIMITED. Flight Simulator, Microsoft and BAo are registered trademarks and trading names of Microsoft Corporation in the United States and other countries. All are copyright by appropriate laws in respective countries. * **Aircraft require Flight Simulator Flight Shop.**

Sold by CHS Distributing

TOLL FREE 1-888-247-3478 • Fax 619-679-0767•Also seller of the complete CH Products line